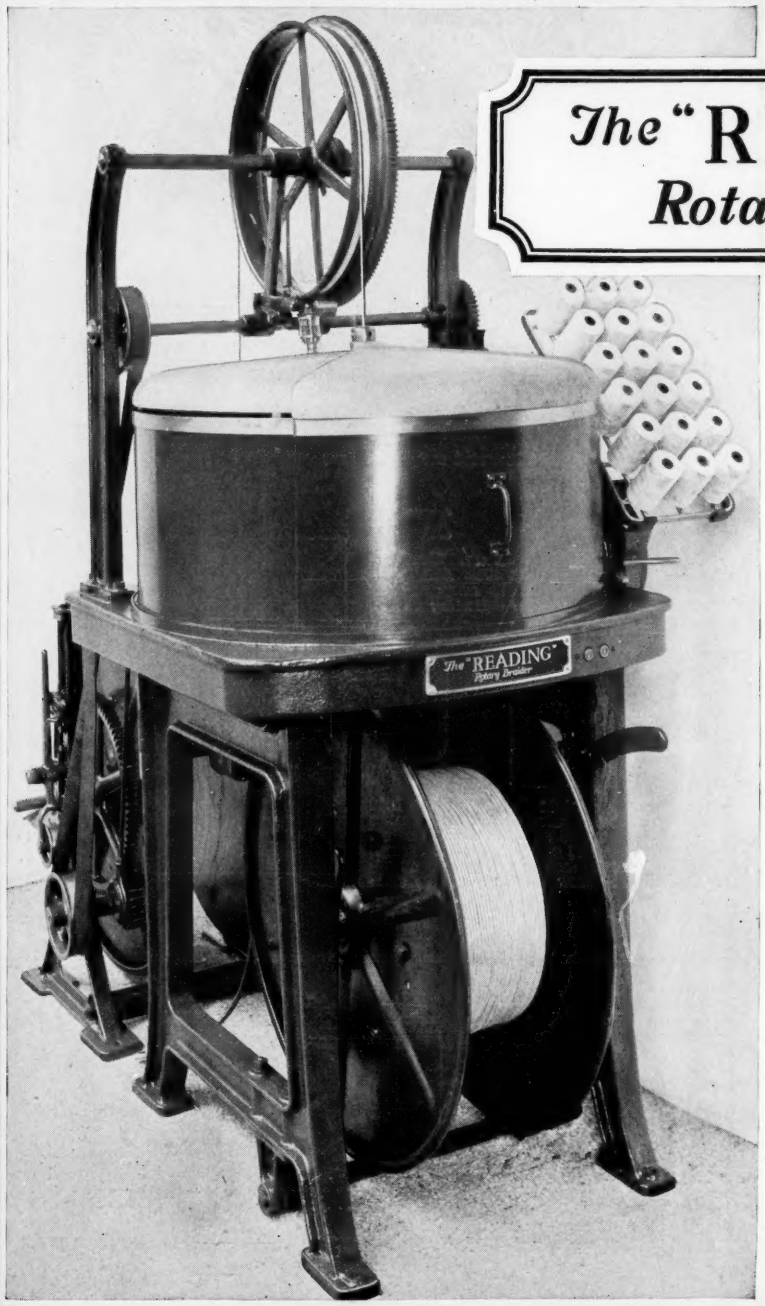
WIRE AND WIRE PRODUCTS

AUGUST 1934



The "READING" Rotary Braider

The "Reading" Rotary Braider, an outstanding development in the rotary braiding machine field, offers new and unusual advantages to users of machines of this type.

This machine has been designed along thoroughly modern lines. Its mechanism differs from existing types of rotary braiders in that the yarn packages are revolved in a horizontal position, and that anti-friction bearings have been used liberally throughout. This makes it possible to operate the "Reading" machine at a much higher speed than other rotary braiders, with a corresponding decrease in power consumption.

The "Reading" machine operates at a speed of from six to eight times that of the "Maypole" type and approximately twice that of existing types of rotary braiders.

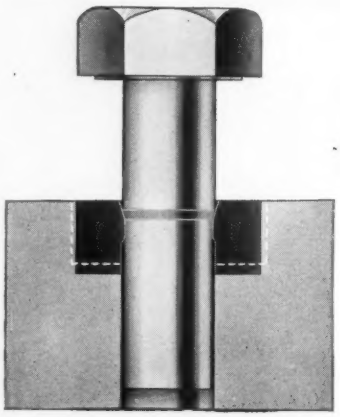
TEXTILE MACHINE WORKS
Reading Pennsylvania

OFFICIAL PUBLICATION OF THE WIRE ASSOCIATION

Investigate The

Cost Saving Features of

CARBOLOY SIZING & EXTRUDING DIES



Carboloy Extruding Die without lead-in land. For use on vertical machines to size bolts and rods for thread rolling. Casings are hardened and ground. Special casings and casings with hardened tool steel bushings may be had at a small additional charge. Dotted lines show alternate nib for sizes 5/16 to 9/16.

Accurate concentricity, close limits on size and superior finish on the extruded portion of bolts, result from the use of Carboloy Extruding and Sizings Dies.

In terms of savings to you, these advantages mean closer tolerances on pitch diameter of rolled threads, longer life for your thread rolling dies and less down time on your machines.

The die nibs illustrated here are types most commonly used. Special types are available for particular requirements.

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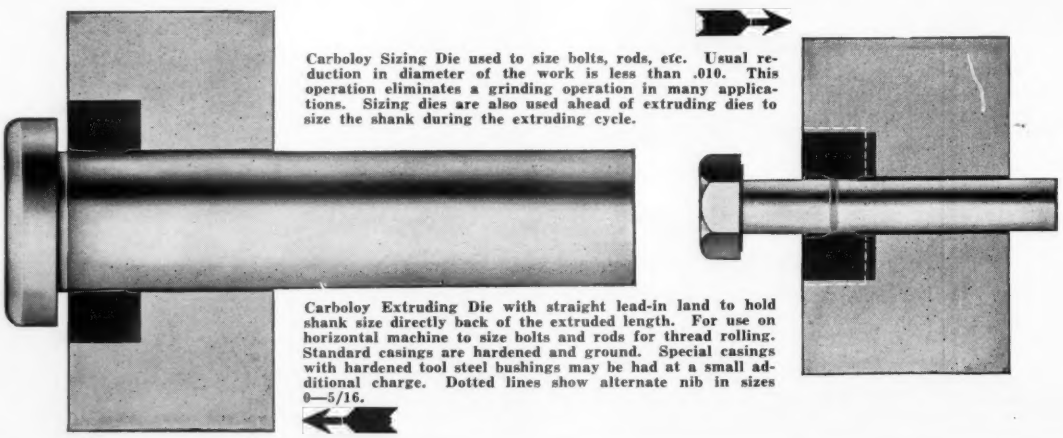
DETROIT: 2481 E. Grand Blvd.
NEWARK: 144 Washington St.
PHILADELPHIA: 4801 N. Broad St.
PITTSBURGH: 704 Second Ave.

(Nibs illustrated are actual size.)



Carboloy Sizing Die used to size bolts, rods, etc. Usual reduction in diameter of the work is less than .010. This operation eliminates a grinding operation in many applications. Sizing dies are also used ahead of extruding dies to size the shank during the extruding cycle.

Carboloy Extruding Die with straight lead-in land to hold shank size directly back of the extruded length. For use on horizontal machine to size bolts and rods for thread rolling. Standard casings are hardened and ground. Special casings with hardened tool steel bushings may be had at a small additional charge. Dotted lines show alternate nib in sizes 0—5/16.

CARBOLOY

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Waterbury No. 1 Straight Roll Machines, With Spooling Attachment.

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9 Die Richards Continuous Machine For Copper Rod

Waterbury stand spooler for fine wire.

No. 321
Electric Platform Truck
Capacity 6000 lbs.
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Five-block rod bench with gear drive and motor, 26″ and 22″ blocks.

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Twenty head enameling machine complete, capacity down to .001.

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Eight head spooler, capacity 200 lb. spools, motor driven.

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No. 403
Waterbury straight roll fine wire machines, motor and belt drive.

No. 406
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No. 408
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No. 409
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No. 432
24 block intermediate frame with 16″ blocks, reducer, and pulley drive.

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Automatic Four Slide Forming Machines

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No. 19 Wire Tubular Stranding Machine for 200 to 400 lb. bobbins, also Spooler for same.

No. 339
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½″ Capacity, 20 ft. Lengths.

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No. 411
A 5-keg nail tumbler.

No. 412
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No. 413
U. S. S. M. Power Eyeletting machines, type B.

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Two take-ups. 60″ reel by 32″ traverse, with jacks, and chain drive from capstan shaft, also two let-off stands, and 36 x 8 capstans with spur drive.

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Paper wrapping machine, coils 16″ to 22″, 100 lb. weight, Terkelsen 1C or equivalent.

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No. 419
Single spooler, 6½ x 6½ for No. 20 hard basic.

No. 420
4 block rod bench, 22″ or 24″.

No. 423
Automatic roll feed for press, 2″ stroke, stock 3″ x 1/16″.

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Lewis-Shepard lift trucks, about 45 x 20, height 6″.

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Loom for brass, copper and bronze, 100 mesh.

No. 427
2¼″ x 6″ c. r. mills with take-ups.

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Electric spot welder for wire and light sheets.

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Flattening mill for .10 x .014 stapling.

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REGISTRY OF USED WIRE MILL MACHINERY

WE AGREE, MR. LEWIS !!

"Spooled wire has many advantages over the coiled product in the wire mill".

"It allows for higher drawing speeds, often three times that of wire taken from a reel".

"... ease of handling with less waste".

"The customer gets a much neater package and one that is more adaptable to his requirements".

—A partial summary of a recent article by Kenneth B. Lewis, wire mill consultant.

We make no contention that spooling is a panacea for wire handling ills but we do claim that for the finer wires it will allow higher drawing speeds, reduce waste and diminish floor space. Multi-spindle spoolers allow a more efficient grouping of light rolling equipment. Customers' packaging specifications are easily met and a splendid sales point is advanced.

Our spoolers cover a wide range of usage and are adaptable to suit any wire mill requirements.

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WORCESTER, MASS., U. S. A.

DESIGNERS OF MODERN WIRE MILL EQUIPMENT

WIRE AND WIRE PRODUCTS

A monthly publication devoted to the production of Wire, Rod and Strip Wire Products and Insulated Wire and Cable.

DRAWING—ROLLING—EXTRUDING—FORMING—FABRICATING

Vol. 9 August 1934 No. 8

Designated as

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A Complete FIRTHALOY Installation

FIRTH-STERLING QUALITY

The above installation of die finishing equipment was made on the recommendation of Firthaloy Engineers. It illustrates the small amount of space and Firthaloy Die Machinery required in a 300 ton a day wire drawing mill.

The savings made by purchasing "rough drilled" Firthaloy nibs in casings and finishing in your own shop will quickly pay for the equipment, and result in a lower net cost for dies, with better service in the shop.

The Firthaloy Engineering Department will gladly discuss the application of Firthaloy Dies in your plant—recommend necessary equipment—and instruct your operators on its use.

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WIRE AND WIRE PRODUCTS

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Wire Products and Insulated Wire and Cable.
DRAWING --- ROLLING --- EXTRUDING --- FORMING --- FABRICATING

Vol. 9 August 1934 No. 8

A Modern Rod Cleaning Installation

By Albert F. Carl

Cleveland Tramrail Division of Cleveland Crane & Engineering Co., Wickliffe, Ohio.

A description of the new straight line cleaning system installed in the plant of Russell, Burdsall and Ward Bolt and Nut Co., Rock Falls, Ill.

THE new straight line cleaning system in the plant of Russell, Burdsall and Ward Bolt and Nut Company, Rock Falls, Illinois, has demonstrated, in actual savings the value of careful planning when full advantage is taken of all available information on mechanical, ceramic, chemical, ventilating and temperature control engineering. It was possible in this case to transform an inefficient rod cleaning house to a clean, orderly and efficient production unit.

✦ ✦ ✦

The Old System of Circular Tubs

THE former system was, as will be found in many wire mills at the present time, an arrangement of circular wood tubs for acid, water and lime. These were served by a steam operated type jib crane, requiring two men to operate the crane and two men to supply and remove rod on hand pushed floor trucks. The wood construction of tubs for this service presented many problems, the outstanding of which was leaks that undermined floors and foundations, together with excessive waste of acid, weakened pickling solution and practically no temperature control. The sull rack or rust coating was of sufficient length to take six yokes of rod, but with poor results on coating. It was mechanically arranged so yokes would move slowly forward and toward the lime tub. Here there was another man and hoisting equipment to handle the yokes of rod into the lime and then to floor trucks for baking or to storage, welding or drawing blocks for air drying. It was therefore obvious, from the above picture, that man power and materials handling equipment were over applied, and losses of acid and the variable cleaning cycle was a costly form of traditional practice.

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The New System
Straight Line Cleaning

IN photo No. 1, we have a general view of the new cleaning system, showing the single leg cleaning house crane, brick and concrete tub construction and acid-resisting type of hair pin hooks and the measuring tank. The cleaning house crane is a Cleveland Tramrail single leg gantry design of ample capacity to meet all handling requirements under cleaning house conditions, with twin hooks to hold the load steady and prevent rotation when at rest, or in transit. With this feature, it is found possible to operate at a high speed, both in attaching and releasing the load and travel up and down the runway. With one crane runway suspended overhead, an open space, free of obstruction, is provided so that loads of rod, when cleansed and limed, are placed on a floor truck so they can be moved by the crane operator manually or by power, quickly stripping the acid hooks.

✦ ✦ ✦

The Crane

BOTH motions of the crane are electrically operated and all machinery is on the lower part of

the leg for complete protection and accessibility. All moving parts are equipped with ball or roller bearings, and the crane, with full load, can be pushed by one man. Electrical power for driving is therefore negligible. Variable speed control, safety electrical devices, limit switches and spot lighting are of the latest design. The operator rides in a platform type cage that is about one foot from the floor line and four inches from the side of the tubs. This is to facilitate stepping on and off quickly and give close supervision of the work.

✦ ✦ ✦

The Tubs

THE brick and concrete tubs with straight line arrangement offer expansion possibilities not to be found in the circular design, whether wood or brick, in that after a circle is once planned, no additional tubs can be added, and any expansion of production involves a complete new circle with duplicate equipment. Brick tubs of the type used in this installation consist of a concrete shell having nine inch walls, with three layers of Toronto acid blocks—8½"x4"x 3½" for bottom construction, two layers on all inside walls, one layer on the top and one layer on the outside, including the drain trough. These tubs have an inside dimension of 6′ wide x 11′ long x 7′ deep, with an approximate twenty-five hundred gallon capacity. All joints between the brick are sealed with a Basolite compound, and the shell in this way is completely protected.

✦ ✦ ✦

TWO double pin acid tubs and one single tub for high pressure rinsing were constructed with expansion joints between each set. Two pin acid tubs cost less to build than two single pin tubs, possibilities of leaks are lessened by eliminating brick joints and drains and there is a saving in steam after temperatures are up. The tubs are of sufficient length and width to take two pins of rod, each pin holding five to six 300 lb. coils. This unit load is most convenient because of the large diameter rods used here. Three thousand pound loads are more desirable for small mills, where the product differs somewhat, and are more economical because they require the same cleaning cycle as smaller loads.

✦ ✦ ✦

Drain and Overflow Protection

SPECIAL attention was given to the tub drain and over-flow protection. The drains are of three inch Duriron, sealed in the brick and concrete with Basolite, and have a Durimet tapered type plug, with an accurately ground seat to prevent any possibilities of leaks at this point. The drain and assembly has been calked and sealed with jute and asphalt cement to the sewer line. A three inch Duriron pipe leads direct to the Sulphate Plant for deposit and partial neutralization of the spent acid. To fully protect the floors and outside of the tub, an overflow pipe is provided eight inches from the top of each tub and leads to a receiving tank, where the solution can be returned to the tub when desired, rather than being a complete loss if connected to a sewer.

✦ ✦ ✦

The Measuring Tank

THE measuring tank is shown to the right and in the foreground of Photo No. 1. It is of sufficient size to take care of acid requirements for two tubs and constructed of acid-resisting iron. A sight gauge is provided so the operator can keep an accurate check on acid furnished each tub, gravity feed is used from the 11,000 gallon main storage tank to the measuring tank and then direct to the tubs; the overflow bypasses and valve and leads direct to one acid tub for protection.

✦ ✦ ✦

Steam and Temperature Controls

STEAM of 80 to 125 lbs. is used to heat the solution 160 to 180 degrees temperature, through a Duriron circulating steam jet. The jets are located in the corner and reach to the bottom of each tub and extend in about eighteen inches. Temperatures are accurately maintained by Foxboro temperature control instruments. Acid action on the rod is controlled by Grasselli Inhibitor No. 3. This chemical development assists also to keep down fumes and make the cleaning house a better place in which to work.

✦ ✦ ✦

The Rinsing Operation

THE rinsing operation has changed from the old swishing and high pressure rubber hose to one of permanently located high pressure nozzles, where water sprays hit the rod from several angles and do a splendid job of washing. A 300 G.P.M. Dayton-Dowd pump delivers water at 100 to 110 lbs. pressure through 5" mains to the tub, where it is reduced to 3" and then 2" pipe. On each side and end of the tub, two 2" pipes are arranged at approximately 12" from the top of the tub to the first pipe and 24" to the next. Each cross line is equipped with thirty-three special bronze nozzles with an opening of .085—13 degree taper. Each are ¾" long, spaced 1¾" apart and deliver a vicious cutting stream of water. All pipes are flush with the inside of the tubs, this provision was made during construction of the brick work.

✦ ✦ ✦

The Pump

THE pump is push button controlled and this control is located on the wall, directly behind and at the proper elevation, so the gantry crane operator can conveniently reach it from his operating cage. Each time a pin load of rod is washed, the pump is started after the load is in the tub or while lowering, and then stopped again when finished. In this way, the minimum amount of water is consumed.

Sull Rack and Lime Tub

A CONTINUATION of the concrete shell serves as a sull rack and lime tub. See photo No. 2. On the top of the walls of the sull rack, 3″x10″ timbers are bolted to provide a cushion for the acid-resisting hooks when lowered into place. This rack is equipped with spray nozzles that give off a very fine mist and rapidly rust coat the cleaned rod. Two ¾″ pipes run the full length with nozzles on 29″ centers. The first pipe is 9″ from the top of the tub and the next 44″. The bottom of the rack has a ¼″ grade to the foot, so that all water flows to the drain.

✦ ✦ ✦

THE entire assembly of the tubs is set on concrete piers seven feet apart and with a 2′-6″ clearance from the bottom of the tub to the top of piers. This provision simplifies any replacement of drain or sewers and gives ample room for heating ducts on either side of the tub.

✦ ✦ ✦

Labor Saving and Better Pickling Obtained

WITH the Cleveland Tramrail gantry crane and this straight line system of cleaning, one man only is now required to handle the production in the cleaning house proper, a saving of 20% in acid has been recorded, because of instrument temperature control, and dumping of the solution every five to eight days instead of, as formerly, every two to three days. Loss of rod from over-pickling is an item, and the better sulling condition permits more draft at the drawing blocks.

Production

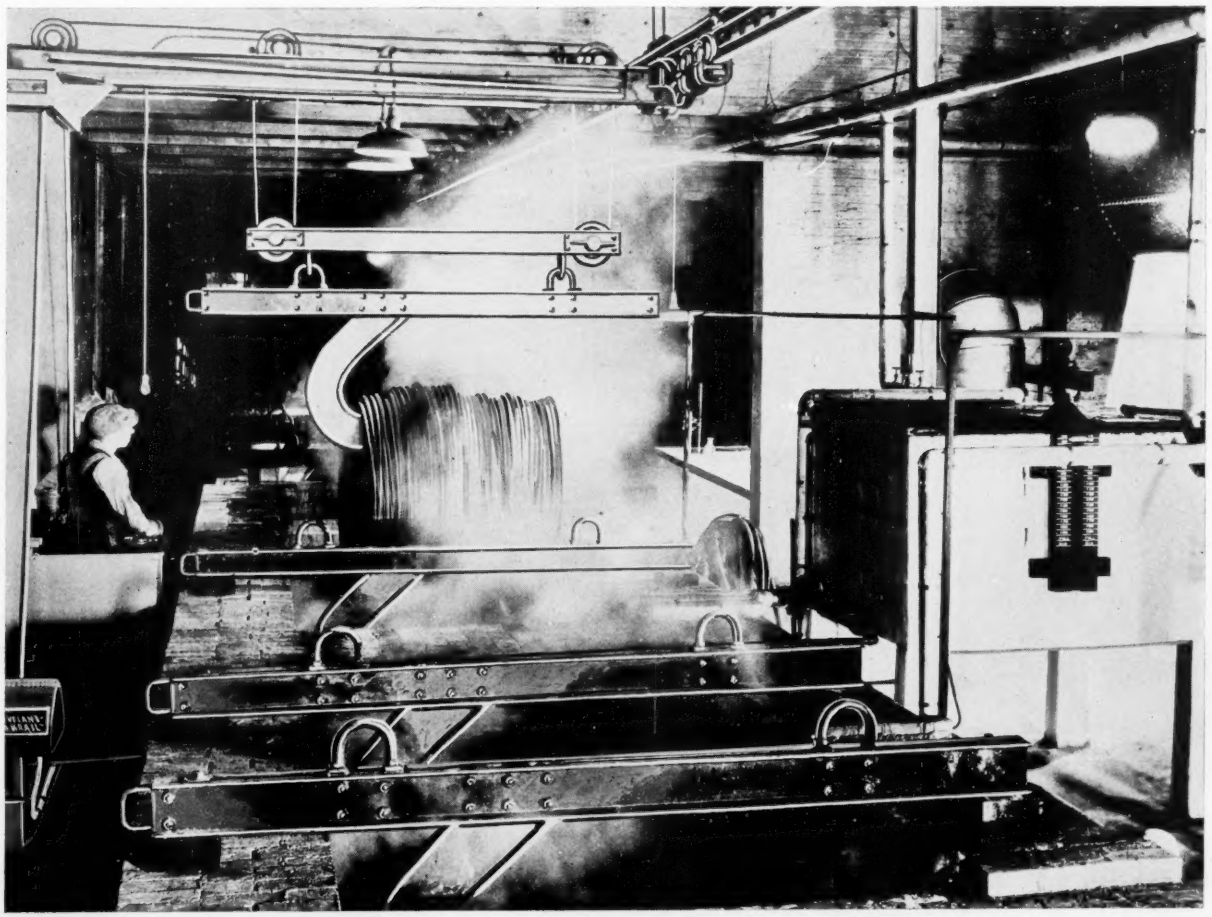
PRODUCTION with two tubs at twenty minutes maximum cleaning cycle is twelve tons per hour, with 2000 lbs. pin loads, and also there is approximately 50% idle crane time due to the better arrangement of handling. There is a possibility here of adding two more tubs and doubling the production with the same handling equipment, if an increase over present requirements would be necessary.

✦ ✦ ✦

Rod Handling

THE handling of rods at both ends of the system was arranged conveniently to lessen the

(*Please turn to page 259*)



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The Manufacture of Suspension Bridge Wire

By Frederick A. Westphal

Superintendent of Wire Mills, Sheffield Steel Corporation, Kansas City, Missouri

Describing the processes required to produce a satisfactory bridge wire. Some of this data was originally published in "The Iron Age" in 1930 and is here revised and brought up-to-date.

ONE of the most masterful achievements for a steel company in this era is the complete manufacture of bridge wire for the great suspension bridges.

To start at the open-hearth furnace charge (of course not overlooking the great importance of the blast furnace operations) and follow through to satisfactorily finished wire ready for shipment, calls for a well-experienced, courageous and fully cooperative organization. Making bridge wire involves so many different steps and processes, that equipment and organization must be united into a strong chain to succeed in the task and make a profit.

✦ ✦ ✦

THIS article will dwell mainly with the processing from the billet through to finished wire, but to make it complete, suggestions are given from the start of manufacture, that is, from the charge into the open-hearth. Furthermore, the object sought is helpfulness for the future and not for controversy.

✦ ✦ ✦

The Problem

THE problem is as follows: To make 0.192-in. galvanized wire with the following principal properties: A minimum tensile strength of 225,000 lb. per sq. in., galvanized to withstand five immersions in the Preece test, with elongation of not less than 2 per cent in 12 in., and to stand a wrap around 1½ diameters without sign of fracture in the steel. Other specifications are imposed too numerous to mention here.

✦ ✦ ✦

Quality of the Steel

FOR attaining the above results from the wire the open-hearth may work to the following ladle analysis:

Carbon, 0.75 to 0.85 per cent
Manganese, 0.50 to 0.70 per cent
Silicon, 0.10 to 0.20 per cent
Phosphorus, 0.04 (maximum)
Sulphur, 0.04 (maximum)
Copper, 0.15 to 0.25

Fig. 1. Charging floor of open hearth furnace.

Methods of Making Steel

THE six productive methods of making steel in this country today are:

(1) crucible

(2) acid open-hearth

(3) basic open-hearth

(4) acid Bessemer

(5) duplex (Bessemer to open-hearth) and

(6) electric furnace, acid or basic lined.

✦ ✦ ✦

THE best steel could be obtained from the crucible and electric methods. Crucible steel is, of course, impractical on account of the very small sized heats and prohibitive cost of manufacture; electric steel is in the same category at this time, but very likely electric steel furnaces in the future may be developed of large enough size to be handled practically and profitably for bridge wire. Bessemer steel to the required analysis is obviously undesirable, and although some duplex steel may work satisfactorily it should not be used because of inconsistencies of segregation, oxides and non-uniformity of structure.

✦ ✦ ✦

Basic Steel Now Used for Wire Rope

THIS leaves two methods for making the steel, namely acid and basic open-hearth. Heretofore acid steel has usually been specified for bridge wire. It is known that it is a cleaner steel, and works nicer in the various stages of the process. Furthermore, a comparison of acid and basic steel of practically the same analysis shows that in the long run acid steel is a little more consistent in final physical tests. However, these facts do not mean that basic steel cannot be used. It was formerly believed that certain sizes and grades of wire rope had to be made of acid steel, but wire rope makers are now able to make as good wire rope using basic steel of similar analysis as they were formerly able to produce from acid steel.

Selection of Scrap

EXTREME care should be taken in choosing scrap for the open-hearth charge to avoid impurities and alloys, such as automobile scrap would introduce. Scrap for steel of this nature should be obtained on analysis, such as shear scrap, crop ends and high grade melting steel scrap. A plant operating blast furnaces could go to the extreme of furnishing the hot iron ores carefully selected for Bessemer iron, thereby having a minimum of sulphur and phosphorus.

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IN view of the above facts, it is my opinion that basic steel made with the same care as acid steel, and of particularly well selected raw materials, could be used for bridge wire.

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Ingot Practice of Prime Importance

PRACTICE varies in steel works as to the size of heats and ingots used, but the heat should not exceed 100 tons, and the teeming should be at such a speed as to prevent inclusion of gases and bubbling. The ingot molds should be the hot type to counteract piping and segregation as much as possible. A maximum size would be approximately 22 by 24 by 84 in., with a weight of 8800 lb. Care should be taken to allow complete solidification of the steel before stripping. Uniform and a penetrating heating is required in the soaking pits; temperature should not exceed 2200 deg. Fahr. before blooming.

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IT is important to keep individual heats of steel separate from one another in their passage from the open-hearth to the finished wire. Assuming complete records are being kept of each operation, references and study can be made of any difficulty met in subsequent operations by keeping heats properly identified and segregated.

Three High Blooming Mills Preferable

ON a two-high reversing blooming mill the head roller is tempted to take too great a reduction per pass, thus injuring the steel with telling effect later. Three-high blooming mills are preferable, because the reductions can be adjusted by the roll setting and are taken more evenly.

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Treating the Bloom

THE bloom, before going to the billet mill, should be cropped at top at least 10 or even 12 per cent, even though hot tops are used, and at this point careful inspection should be given to insure that all trace of piped metal is discarded. Of course, at least 3 per cent of the bottom of back end of the bloom should be discarded. Some mills have surface scrapers to act on the bloom or at some passes in the billet mill. This is a good feature, but the nature of high carbon steel surfaces is such that this detail should not be necessary if previous precautions and good practices have been closely observed.

✦ ✦ ✦

Billet and Rod Mills Require Careful Adjustment

Preparing the Billet

ASSUMING that a Morgan rod mill is to roll the rods, the billets should be 2 in. square, 30 ft. in length, weighing approximately 400 lb., in order to give the desired length of finished wire. Since the future holds forth probabilities that bridge wire is to be furnished in longer coils, the majority of the latest rod mills are designed to take a heavier billet than above stipulated. The heavier billet, of course, is easily rolled on present-day billet mills. Before the billets are delivered to the rod mill they should be put over the chipping beds, all four sides closely inspected for seams, laps and slivers.

Such defects should be marked and chipped out, or if too deep the billets should be rejected. Both ends should be carefully examined for visible piping or segregation.

✦ ✦ ✦

FROM the open-hearth charging floor through to the finished and inspected billet the effort has been made to point out very briefly that a detailed line up of the best steel works practice is required for the basis of bridge wire manufacture. This really produces a fine quality of steel. From this point on it is strictly up to the wire specialist to produce a satisfactory wire.

✦ ✦ ✦

Preparing the Rod

THE practice from the billet is briefly as follows: The 7/16-in. diameter rod is patented, cleaned, sull coated, lime coated, baked and drawn six drafts to finished size (0.192 in., with tolerance of 0.002 in. over or under). This bright wire is then galvanized, after which it is ready for shipment. Each of these steps in process are vitally important to satisfactorily finished wire, and faulty operations in any steps would give disastrous results, therefore each operation will be discussed in detail.

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Heat Treatments

IT has been previously mentioned that each heat should be kept separate; therefore, the billets of bridge wire heats are placed on the rod mill skids, properly marked and separated from those ahead and to follow. Here reinspection should be made for surface imperfections before they are charged into the heating furnace. The recuperative type of furnace is generally used in modern mills; here the heat must uniformly increase as the billets work down the furnace, and be so adjusted that when ready to enter the rod mill the ends of the billet as well as the center has reached a uni- from heat, somewhere between 1900 and 2000 deg. Fahr.

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Rolling the Rod

THERE are various designs of rod mills available today, any one amply capable of rolling a first quality wire rod. The guiding points, providing the roller has his

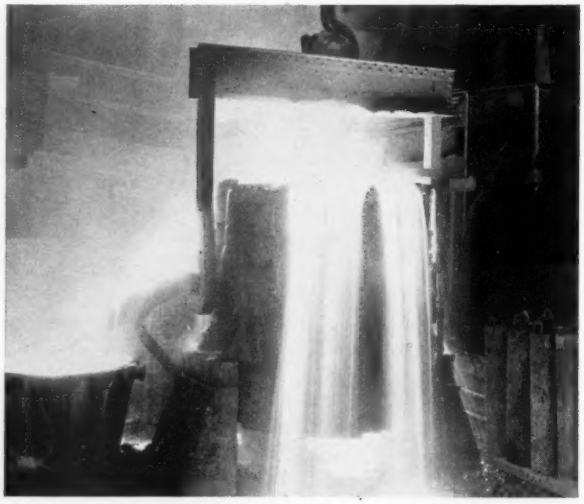

Fig. 2. Tapping a heat of steel.

mill correctly set up, is to roll "hot", that is, from 1900 to 2000 deg. Fahr., have a minimum of water from the finishing stand of the mill to the reels, and rigidly prohibit water on the reels. Otherwise a spotty martensitic structure will be produced on the coils, a microstructure that would make those parts of the rods quenched by the water very brittle and cause many brittle breaks in subsequent operations. As the rods come out on the conveyor every coil should be closely inspected for surface imperfections and size, and the finned ends trimmed.

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Patenting--An Essential Preliminary

AFTER the rods are rolled, heat treatment of this high carbon steel is the next process to be accomplished. Space is too limited to illustrate the layout or design of patenting equipment, but briefly the furnace should be at least 50 ft, in length with a lead pan not less than 18 ft. long built at the exit end for a quenching bath. Separators should be built inside the furnace proper to prevent any cabling of heated rods, as contact would cause a non-uniform patenting effect. The heat in the furnace proper and in the lead pan should each be controlled by thermocouples placed at suitable points. Although the steel used is near the eutectoid composition, and its critical temperature is approximately 1325 deg. Fahr., it is essential to attain a heat well over the critical, namely, 1625 to 1675 deg. Fahr.

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HOT rods should be passed directly into the lead pan without contact to the air. The lead is held to uniform temperature either by blowers, water-cooled pipes or both. Temperatures in the lead bath should be varied slightly for different heats, as determined by "shoestring tests" run for each individual heat. It will vary between 850 and 950 deg. Fahr.

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STRUCTURE of the patented rod will be sorbite. Tensile strength should be 145,000 to 165,000 per sq. in., elongation approximately 10 per cent in 10 in. and reduction of area at least 50 per cent.

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PATENTING must be very carefully supervised. Strict uniformity of heat according to schedule must be demanded. The speed at which the rod is drawn through should be so regulated as to insure a penetrating heat at the specified temperatures, otherwise the finished physical properties desired of the wire will be lacking. "Slack patenting" is one cause of

rejection, due to none other than poor patenting conditions, and shows up in the physical tests as a low percentage of reduction of area, and a failure to stand bend or torsional tests on the finished wire.

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Acid Brittleness

DIFFICULTY may be experienced at this stage by hot lead adhering to the finished patented rods. This cannot be cleaned off in subsequent acid cleaning operations unless an excessive amount of acid is used, and even then the lead will be only partially cleaned off. Such extra acid cleaning invites "acid brittleness," but all adhering lead will give trouble in drawing and in the subsequent galvanizing process. One very good device to prevent this condition is a header full of weak coke breeze through which the patented rods pass after leaving the lead pan.

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Shoestring Tests

FOR a clearer understanding of just what is meant by "shoestring tests," the following comments are hereby presented:—

(1) Each heat of steel made within a given practical range of analysis will have different characteristics and slight variations in desired finished results.

Please bear in mind that I mentioned that in making very particular products such as bridge wire that it is essential to keep heats separate from start to finish.

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(2) From the start of each heat of steel through each subsequent operation to finished product—slight alterations may be necessary in some of the intermediate operations to obtain the desired finished results.

For example—assume a heat is rolled to rods. It should be held up temporarily at this point until a "shoestring test" or preliminary test has been run through to finished **bright** wire. If the physical tests on the rods, the patented rods and finished **bright** wire are meeting the standards of the practice set up — then the aforementioned heat of rods is picked up and started through to its next stages. The "shoestring test" could be three or five coils of rods or whatever amount decided upon.

Assume tests are not meeting the standards of the practice—then it is time for investigation and correction determined by the proper operating authorities in cooperation with the metallurgical staff.

(3) "Shoestring tests" are preliminaries or in military terms—"the advance guard or scouts ahead of the main body looking for trouble," and of course in steel terms, a "shoestring test" or preliminary is for each heat of steel. For the manufacturer it is anticipating any troubles in the making of the finished wire.

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Operations Required to Give Proper Surface on Rod

PICKLING

THE importance of proper conditions in the pickling tank for cleaning off the mill scale from the patented rods cannot be emphasized too much. When 66-deg. Baume sulphuric acid is used the cleaning solution should have from 5 to 8 per cent acidity, and under no circumstances should be hotter than 110 deg. Fahr. If the temperature at this point be 165 to 180 deg. Fahr., such as is used for low carbon steel, it is certain that acid brittleness will result, regardless of the intensive baking later.

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Inhibitors

THREE or four inhibitors are now on the market, of either vegetable, coal oil or petroleum base; one of them should be used in the cleaning solution, because it not only reduces the amount of acid necessary to clean the rods but very effectively prevents "overcleaning"—that is, pitting the surface of the rods—as well as acid brittleness. Should acid brittleness appear in final tests on the wire, the first place to look for trouble is in the records of the acid cleaning house, because it is well accepted that steel, especially high carbon steel, absorbs hydrogen from an acid cleaning solution just as a sponge absorbs water. (However, hydrogen in steel does not absorb as quickly as water does in a sponge.)

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The Sull Coat

AFTER the rods have been well cleaned of scale and washed of acid they should be placed under an atomizing spray of water and left for some time. The amount of sull-coat or hydroxide of iron given the rod depends on the temperature of the cleaning house and the humidity of the air, but under normal conditions 25 to 30 minutes is sufficient. Moist rust at this stage is a very good lubricant in the wire drawing dies for high carbon steel rods.

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The Lime Coat

NEXT the lime coat is obtained by submerging the rods repeatedly in heavy lime at about 160 deg. Fahr. By "heavy lime" is meant water with choice slaked lime, thoroughly mixed in a thick suspension.

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Baking

BAKERS should be controlled by a recording thermometer, and the rods should bake for 10 to 12 hours at 400 to 450 deg. Fahr. This should drive out any normal amount of hydrogen in the steel, dry the lime coat and sull-coat and put the rods in suitable shape for the drawing dies.

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Wire Drawing Schedule
Drawing Equipment

EQUIPMENT for drawing bridge wire must be exceptionally large and powerful to accomplish the desired reduction. For better control of each draft and for safety considerations, individual motor

drives for the wire-drawing blocks are now most acceptable. Present practice is for one draw at a time; "double decking" may be acceptable in the future. (Double decking uses one motor-driven spindle for two drafts. The first draft is taken on the lower tier or block and then the wire is passed around a sheave at the die holder, then through the second die on the upper tier or block for the second draft. The ratio of the lower tier or block to the upper is as 17 is to 22.)

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IT is feasible to predict that eventually continuous 5 draft machines for drawing wire of this type could be constructed. The load involved in this type of work, of course, is beyond present day construction for continuous drawing.

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Size and Speed of Drawing Blocks

TO facilitate hauling, control and workability, the block should be 30 in. diameter, the maximum speed 16.5 r. p. m., or 130 ft. per min. The dies would be of alloy steel heat treated or Tungsten-carbide. High carbon steel should not be reduced in area too quickly or severely because this has an adverse effect on the bend, torsional and fatigue tests. This problem resolves itself to an average of 24.5 per cent reduction in area for each draft. That means that, starting with a 7/16-in. diameter rod, each of these successive six drafts have the following diameters: (1) 0.384, (2) 0.334, (3) 0.290, (4) 0.252, (5) 0.219, (6) 0.192 finish. It is understood that practical mill tolerances of 0.002 over or under are allowable for each draft.

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Lubricants for Drawing

TO prevent scratching the surface of the wire or cutting out the bearing of each respective die, and to aid in the reduction for each draft, a lubricant of high-grade powdered soap thoroughly mixed with a small portion of dry powdered hydrated lime is used. It depends on the quality of the lime coating (which serves as a lubricant in drawing as well as neutralizing the sulphuric acid left after cleaning the rods) whether the soap and lime lubricant mentioned will be used before each die. Providing the lime coat and sull coat is sufficient, it is likely that the lubricant will be needed on the first three drafts only. Practical judgment and experience will determine this point.

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Inspection of Finished Wire

AFTER the wire has been drawn to finished size, that is, 0.192 in. with 0.002 in. tolerance over or under, each coil of wire should be thoroughly inspected and tested on the front and back end to the following minimum requirements:

240,000 lb. per sq. in. tensile strength.

40 per cent reduction of area after fracture.

2 per cent elongation in 12 in.

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Galvanizing

AFTER the wire has been inspected and has satisfactorily met the beforementioned specifications for bright wire, it is ready for the next process in manufacture, namely, galvanizing. This process is continuous; that is to say, the individual coils of bright wire are placed on individual reels, run through the galvanizing unit, and wound on the take-up blocks as finished wire ready for final inspection by the purchaser's representative.

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THERE are three clearly defined steps in this continuous operation, each dependent on the other. Due to the necessity of having a sull coat, lime coat and soap and lime lubricant for proper drawing, bright wire has a coating that has been drawn into the very surface of the steel. Necessarily this must first be taken off down to clean steel in condition to alloy with the galvanized coating. Therefore, the wire first passes through a heat treatment, not high enough to affect the structure of the wire, but enough to burn off this coating. One of the most suitable methods is a short immersion in a lead pan at a temperature of about 1000 deg. Fahr; however, it is feasible to predict that Chemical Engineering will eventually discover some chemical solution that will clean off the coating and put the surface of the wire in shape for subsequent operations.

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Cleaning Before Galvanizing

AFTER the coating is burned off, the wire then passes through the second step in the process, a cleaning box, at least 20 ft. long, filled with dilute hydrochloric acid (4 to 6 per cent. cent acidity) at a temperature of 150 to 170 deg. Fahr. Cleaning must necessarily be done by a rapid chemical reaction at the surface of the wire, because the wire is immersed in the solution only 15 seconds. Next the wire enters a short box of hot water at about 200 deg. Fahr., for washing off any acid, and immediately dips into another short box containing a zinc chloride flux, (or dilute hydrochloric acid of about 1 per cent acidity at a temperature of 150 to 175 deg. Fahr.). At this point the surface of the wire must be free from all coating or dirt. A strictly clean surface is necessary for proper galvanizing. Furthermore, it is worth mentioning that there is less danger of acid brittleness at this point of bridge wire manufacture than just after the cleaning operation with sulphuric acid, because the bright wire has been subjected to the hydrogen of the acid for so short a time, 15 sec., in comparison to the many minutes required to remove the closely adherent mill scale from the wire rod. Assurance against

(*Please turn to page 254*)

Stretching and Packing Fourdrinier Wires

By Kürt Jahn
Sallfeld, Thrg. Germany

AFTER the seam has been made each fourdrinier wire is stretched under working tension. A stretching table is designed expressly for this service, with rolls corresponding to the breast roll and wet roll of the paper machine, one fixed and the other capable of being moved by the action of jack-screws on its bearings. After the fabric has been stretched to working tension the rolls are driven for a while at regular working speed.

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WHILE the wire is on the stretching table the seam and such weaving defects as may be found are rolled down, small hard-wood or ivory rollers being used for the purpose. The fabric is lengthened about one percent in stretching and rolling, and allowance must be made for this in cutting and seaming the wire. The amount varies somewhat with the size and quality of the individual wires and with the type of weave.

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UNTIL recently the only polishing the inner side of the fabric got was what slight amount arose from its passage over the smoothing table in front of the breast roll of the loom. Lately however a third roll has been arranged on the stretching table and the fabric given a rolling polish under very light pressure. Proper stretching, running, and polishing put the fabric in condition to go into full production as soon as it is installed.

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HAND worked and belt driven stretching tables have been largely superseded by motor driven tables, such as we show in photo 30. One motor 2 to 3 H. P., geared direct to the fixed roll, serves to rotate the wire, and the other, 3 to 8 H. P., serves to stretch and release the tension. The table, as will be seen, consists of structural side-members joined with spacer-rods, a wooden platform, one or two supporting I-beams, and cast iron feet. Accessories are provided in the way of a roller table for threading up new fabrics, and overhead trolleys for getting the working rolls in and out of their bearings.

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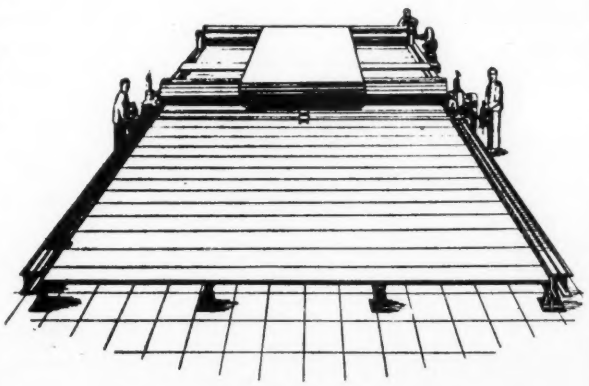
ALL bearings are of the double roller type. Those of the fixed roll are, of course, rigidly mounted on the side members. The bearings of the other roll are arranged to slide on the stretcher carriages, and have long bronze sleeve-bushes to carry the lead-screws which, motor driven through worm gearing, jack the roller ahead to apply the measured tension. Rack teeth secured to the side rails and meshing with pinions on the shafts of hand wheels serve to take up the slack quickly, after which the stretcher carriages are secured rigidly to the side rails in perfect parallelism. There are locking bolts fitting, for this purpose, into holes spaced very accurately four inches apart. There is an arrangement, not readily described without drawings, which takes up the strain of the stretching and relieves these bolts of any functions except that of accurately positioning the carriages.



Stretching Fourdrinier Wire.

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THE rolls are made of steel tubes, for lightness, but are so well braced internally that narrow fabrics can safely be run under proper tension even upon long rolls. Fixed and sliding scale bars permit both operators, at the fixed roll and at the carriage, to check the elongation of the wire. Special provision is sometimes made for stretching the wire more at one edge than the other.

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Packing

A LABEL is attached to the wire, at that point which will be outside after the wire is rolled up. on which is noted the type of weave, mesh size, wire diameter, and fabric width. The fabric is then rolled up on three smooth wooden rollers 2½ to 4 inches diameter, and of a length 4 inches greater than the fabric width. One roller is slipped inside the end of the belt, another outside, and the fabric is then rolled up on the two rollers and the third roller is slipped into the last end, after which the protruding ends of the three rollers are lashed together in such a way as to keep the whole roll tight.

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THE rolled fabric is kept in a dry store-room. It is wrapped in paper and shipped in a wooden case. In the case of export shipment water-proof paper is used, with seams carefully closed with water-proof glue. Needless to say, exported fourdrinier wires are shipped in individual containers which are well

(*Please turn to page 258*)

Wire Association Questions and Answers

Question 1660

The Wire Association:

Do you know of any chart or table which will give the area of a ring or concentric circle?

Answer 1

ONLY two dimensions are necessary to determine the area of any ring—the width of the ring, w, as shown in the sketch, and the distance D, also shown in the sketch. But notice carefully that the distance D is **not** the outside diameter, nor is it the inside diameter. It is the distance from the inside edge to the farthest outside edge.

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TO use the chart simply run a straight line through the width w in column A, and the distance D in column C, and the inter-section with column B instantly gives the area of the ring.

The Wire Association is for the specific purpose of improving production methods. It was organized as a clearing house of ideas on technical problems and research work in all phases of practical wire drawing and wire working.

The inquiries discussed were received from and answered by members of the Wire Association. These inquiries are sent to the Secretary of the Association who acts as a central clearing point, and neither the names of the firms or individuals sending in the inquiry, or of the men or firms replying are divulged without permission.

THUS, for example, the dotted line drawn across the chart shows that if the width w is one inch, and if the distance D is 10 inches, the area is a little over 30 inches. Estimating with the eye and reading the scale in the same way that you read a thermometer it is evident that the area is very close to 31 sq. in.

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IF the figures on the chart are not large enough to take care of your problem, simply add ciphers, in this way: For example, if the width w is 100 inches and the distance D is 1000 inches the same dotted line will solve the problem. Two ciphers are added in column A and two in column C, making a total of four ciphers. Therefore simply add four ciphers to the result in column B. The answer is 310,000 square inches.

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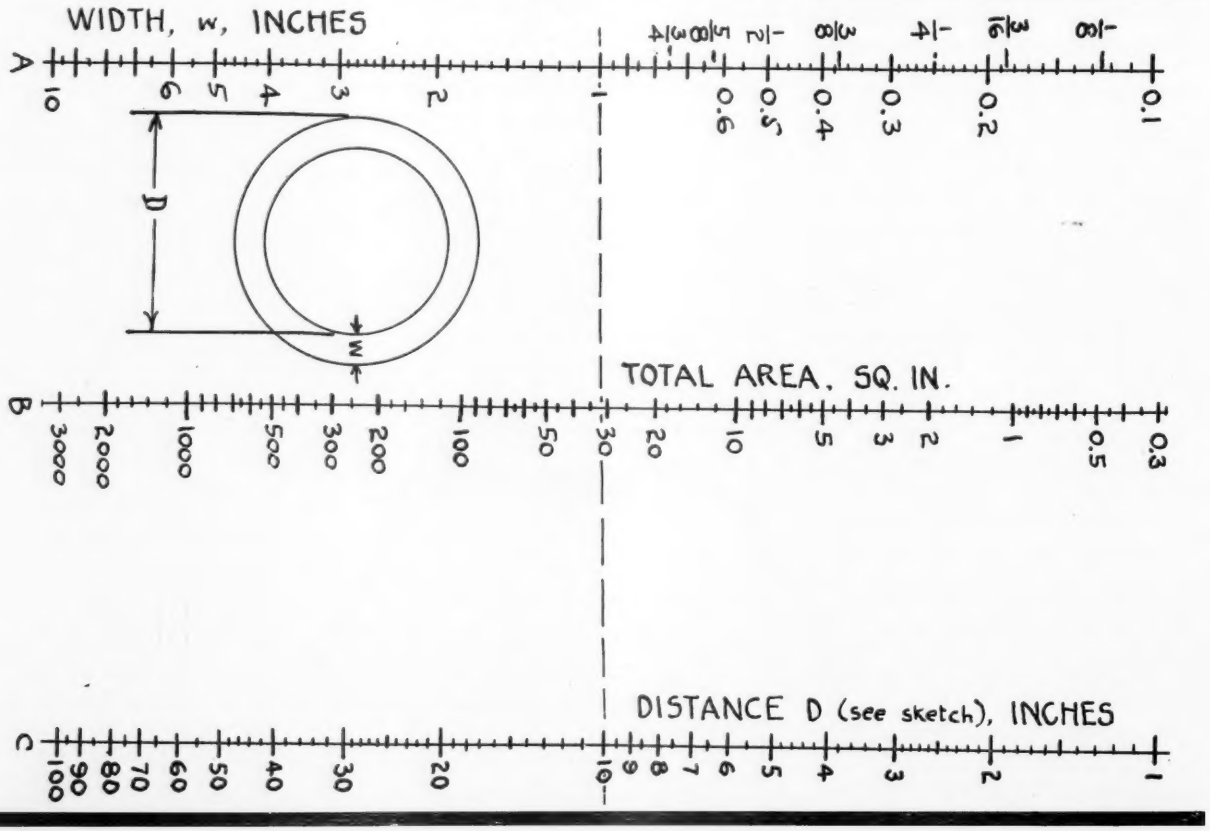
SIMILARLY if the figures on the chart are too large, shift the decimal point over to the **left** in columns A and C. Then in the "answer" shift the decimal point to the left as many digits as shifted to the left in column A plus digits shifted in C. For example, if w is .01" and D is 0.1" the area is 0.0031 sq. in.

Make Your Plans Now
To Attend The
Wire Association Meeting
At New York
October 1-5, 1934



All Wire Mill Men Are Invited to Attend The Wire Association 1934 Meeting and Exhibition

At New York, N. Y., October 1-2-3-4-5, 1934

Held in Association With the National Metal Congress

PROGRAM COMMITTEE

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H. W. Anderson, Pres., Fidelity Machine Co., Philadelphia, Pa.
S. A. Braley, Industrial Fellow, Mellon Inst. of Industrial Research, Pittsburgh, Pa.
Allan B. Dove, Chemical Eng., Steel Co. of Canada, Ltd., Hamilton, Canada.
Paul R. Fast, Superintendent, Belden Mfg. Co., Chicago, Ill.
P. W. Grassell, Pres., Wilson Steel & Wire Co., Chicago, Ill.
D. Horsfall, Works Mgr., Canada Wire & Cable Co., Ltd., Toronto, Ont., Canada.
M. A. Kent, Asst. Gen. Wks. Mgr., General Cable Corp., White Plains, N. Y.
U. C. Tainton, Metallurgical Engineer, Baltimore, Md.

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AT the technical sessions to be held Tuesday, Wednesday and Thursday, the papers will be brief and will be limited to two per session. It is intended that the time shall be spent in open discussion and exchange of experience in matters of general interest to wire mill operating men.

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THE discussions will cover, so far as time permits and in addition to matters arising naturally out of the papers read, a number of topics which have been suggested by members. The program committee will be glad to receive other suggestions.

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IN addition to the program set forth, a splendid opportunity is offered to discuss informally, routine problems and to exchange opinions and ideas regarding equipment and processes used in the industry. For this purpose informal gatherings are held at Wire Association Headquarters in the Hotel New Yorker which are open from 9 A. M. to 12 P. M. (Midnight) during the convention.

THERE WILL BE A REGISTRATION FEE OF $5.00 FOR THOSE ATTENDING THESE TECHNICAL SESSIONS AND INFORMAL MEETINGS.

ADMISSION WILL BE BY BADGE ONLY

Every wire mill production executive engaged in the manufacture or fabrication of wire and wire products of any kind is invited to attend.

REDUCED RATE RETURN TRIP RAILROAD CERTIFICATES FURNISHED TO MEMBERS OF THE ASSOCIATION

✦ ✦ ✦

Make Your Plans Now to Come and Participate in the Discussions

For detailed information address RICHARD E. BROWN, Secretary

THE WIRE ASSOCIATION

17 East 42nd St. New York, N. Y.

✣ PROGRAM ✣

Monday, October 1, 1934, at Hotel Yorker

A. M. and P. M.—Registration—"Get Together"

P. M.—Informal meeting at headquarters of The Wire Association

These informal meetings will be held every night from 8 to 11 o'clock during the convention.

The Technical Sessions

TUESDAY, WEDNESDAY AND THURSDAY, OCTOBER 2-3-4, 1934

To Those Attending the Meeting
stenographic copies of the discussion will be available
at $2.50 per copy.
To all others $5.00 per copy.

Tuesday, October 2, 1934

MORNING SESSION AT HOTEL NEW YORKER, 9:30 A. M.

Subjects—Galvanizing and Corrosion Resisting Coatings.

Frederick A. Westphal, Superintendent Wire Mills,
Sheffield Steel Co., Kansas City, Mo.
Chairman of Meeting.

Paper A.—"Corrosion and Hot Galvanizing".

The theoretical and practical galvanizing of wire with consideration of the mechanism of corrosion.

By Allan B. Dove, Chemical Engineer,
Canada Works, Steel Company of Canada, Ltd., Hamilton, Ont., Canada.

Paper B.—"Galvanizing" (Tentative Title)

(Details of this paper to be announced later.)

By U. C. Tainton, Consulting Engineer,
Baltimore, Md.

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AFTERNOON SESSION—HOTEL NEW YORKER, 2 P. M.

Subjects—(a) Electrolytic Copper. (b) Lubrication.

Paul R. Fast, Superintendent,
Belden Manufacturing Co., Chicago, Ill.
Chairman of meeting.

Paper C.—"Smelting, Casting and Rolling of Electrolytic Copper".

By W. S. Adams, Superintendent of Rolling Mills, and Mr. Miller, Superintendent of Furnace Refinery,
Anaconda Copper Mining Co., Great Falls, Montana.

Paper D.—"Lubrication For Drawing Copper Wire in the Three Stages—Heavy, Medium and Fine Wire".

By John G. Richards, Wire Mill Lubricating Engineer,
G. Whitfield Richards, Philadelphia, Pa.

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Wednesday, October 3, 1934

MORNING SESSION—AT HOTEL NEW YORKER, 9:30 A. M.

Subjects—(a) Annealing and Heat Treating—(b) Steel Wire Manufacture.

P. W. Grassell, President,
Wilson Steel & Wire Co., Chicago, Ill.
Chairman of meeting.

Paper E.—"Bright Annealing of Wire in Electric Furnaces".

Recent developments in annealing both ferrous and non-ferrous wire and strip, and a discussion of the latest types of furnaces involving the uses of controlled atmosphere.

By O. S. Haskell, Industrial Heating Engineering Dept.,
General Electric Co., Schenectady, N. Y.

Topic F.—"Steel Wire Manufacture". (A Lecture)

By F. H. Nullmeyer, Superintendent Rod, Wire & Conduit Dept.,
Youngstown Sheet & Tube Co., Youngstown, O.

Illustrated by motion picture showing manufacturing processes of Youngstown Sheet & Tube Co.

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AFTERNOON SESSION—HOTEL NEW YORKER, 2 P. M.

Subject—"Braiding and Wire Covering Wire"

Joint Session With the Braiding and Wire Covering Machinery Manufacturers Association.
(Admission to session by card. No registration fee required for this meeting.)

H. W. Anderson, President,
Fidelity Machine Co., Philadelphia, Pa.
Chairman of meeting.

Paper 1—"Covering of Wire by Braiding".

By S. B. Blaisdell,
Fidelity Machine Co., Philadelphia, Pa.

Paper 2—"Covering of Wire by Winding and Enameling".

By Robert W. Withington, President,
American Insulating Machinery Co., Philadelphia, Pa.

Paper 3—"High Speed Carrier Developments".

By R. V. Olsen, Vice-President,
Mossberg Pressed Steel Corp., Attleboro, Mass.

ANNUAL MEETING OF THE WIRE ASSOCIATION

Presiding
John Mordica, Superintendent, Rod & Wire Mill,
Bethlehem Steel Co., Sparrows Point, Md.
President of The Wire Association.

✦ ✦ ✦ **Award of The Wire Association Medal** ✦ ✦ ✦

✦ ✦ ✦

Thursday, October 4, 1934

MORNING SESSION—HOTEL NEW YORKER, 9:30 A. M.

Subjects—(a) Spring Wire—(b) Lime Coating.

Dr. S. A. Braley, Industrial Fellow,
Mellon Institute of Industrial Research, University of Pittsburgh.
Chairman of meeting.

Paper G.—"The Properties and Manufacture of Spring Wire".

Discussing the relative physical properties of spring wire dependent not only upon chemical composition but also on the details of manufacturing procedure.

By E. J. P. Fisher, Physical Metallurgist,
Keystone Steel & Wire Co., Peoria, Ill.

Paper H.—"Lime Coating of Rod vs?".

The use of Silicate of Soda and/or Trisodium Phosphate in place of lime in drawing rod and wire.

By H. G. Hobbs, Cleveland, Ohio.

✦ ✦ ✦

AFTERNOON SESSION—HOTEL NEW YORKER, 2 P. M.

Subject—Copper From Mine to Wire.

M. A. Kent, Assistant General Works Manager,
General Cable Corp., White Plains, N. Y.
Chairman of meeting.

Paper I.—"Canadian Copper From Mine to the Wire User".

Dealing particularly with the historical, economical and manufacturing phases of the industry.

By D. Horsfall, Works Manager,
Canada Wire & Cable Co., Toronto, Canada.

A Review of Recent Wire Patents

No. 1,960,954, MACHINE FOR FASTENING A WIRE TO A TUBE, Patented May 29, 1934, by Alva W. Phelps, John Q. Holmes, Charles E. Birch and Homer E. Smith, Anderson, Ind., assignors, by mesne assignments, to General Motors Corporation, Detroit, Mich., a corporation of Delaware.

This machine is also adapted for applying wire to electrical apparatus and more specifically to stapling the end of a wire length to a tube.

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No. 1,963,052, SPRING STRUCTURE, Patented June 12, 1934 by George G. Powers, Winnetka, Ill.

In this spring structure, the wire forming the coil springs is oblong in cross section except for the terminal portion thereof which is substantially round in cross section and knotted around the adjacent oblong section.

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No. 1,963,053, WIRE SPRING, Patented June 12, 1934 by George G. Powers, Chicago, Ill., assignor to The Powers Spring Corporation, Chicago, Ill., a corporation of Illinois.

✦ ✦ ✦

No. 1,963,054-55, WIRE SPRING, Patented June 12, 1934 by George G. Powers, Chicago, Ill., assignor to The Powers Spring Corporation, Chicago, Ill., a corporation of Illinois.

These patents cover a wire coil spring having portions thereof comprising flat wire.

✦ ✦ ✦

No. 1,963,062, WELDING DIE, Patented June 19, 1934 by Salvador Moreira, Worcester, Mass., assignor to The American Steel and Wire Company of New Jersey, a corporation of New Jersey.

This welding die has a recess shaped to receive the part to be welded, the die being provided with an insert constructed from harder material than any other metal from which the die can be constructed and still possess the requisite electrical conductivity, the insert being associated with the die for right angular engagement with the part so as to transmit forging pressures between the latter and a sufficient area of the die to prevent tearing or deformation of the latter.

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No. 1,963,298, WIRE DRAWING METHOD, Patented June 19, 1934 by Flint C. Elder, Cleveland Heights, Ohio, assignor to The American Steel and Wire Company of New Jersey, a corporation of New Jersey.

The method includes coating the wire with lime and then drawing the lime coated wire through a die with a lubricant consisting of a mixture of aluminum stearate and hydrated lime to reduce its gage and cause the lubricant to form an impregnated coating on the wire.

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No. 1,963,305, SEMIROTARY WIRE FABRIC MACHINE, Patented June 19, 1934 by William A. Kilmer, De Kalb, Ill., assignor to The American Steel and Wire

Complete Descriptions and Drawings of Patents May Be Had for 25 cents. Address, Wire & Wire Products, 17 East 42nd St., New York.

Company of New Jersey, a corporation of New Jersey.

Included in the structure of this machine is means operating in alternating opposite directions for twisting at least two mesh wires around each strand wire, with means on the twisting drum for twisting at least two adjacent mesh wires around one another in alternating opposite directions.

✦ ✦ ✦

No. 1,963,456, METHOD AND APPARATUS FOR DRAWING WIRE, Patented June 19, 1934 by Herman S. Worthington, Yardley, Pa., assignor to The American Steel and Wire Company of New Jersey.

The claims in this patent are for the apparatus, the same being for producing dead-cast wire.

✦ ✦ ✦

No. 1,963,491, WIRE OR STRIP BLANKING MACHINE, Patented June 19, 1934 by Tom Hansom, Worcester, England.

The wire is drawn from the supply and positively fed in a horizontal direction between a battery of stamping dies and tools and if desirable, formers, the same coming into operative succession.

✦ ✦ ✦

No. 1,963,536, SELF - LOCKING SCREW, Patented June 19, 1934 by George C. Trotter, Chicago, Ill., assignor, by mesne assignments, to Illinois Tool Works, Chicago, Ill., a corporation of Illinois.

The body portion of this self-locking screw includes a pair of screw sections which, on being shifted laterally and axially with respect to the other, will render the screw self-locking when applied to a threaded aperture.

✦ ✦ ✦

No. 1,963,542, SELF TAPPING SCREW, Patented June 19, 1934 by John A. Bergstrom, Newark, N. J., assignor, by mesne assignments, to Illinois Tool Works, Chicago, Ill., a corporation of Illinois.

The body of this screw has a recess extending longitudinally thereof, thus separating the body into a pair of sections, one of the sections having a cutting edge and the other section being yieldable for increasing the cutting effectiveness of this first named edge.

✦ ✦ ✦

No. 1,964,204, PRESS AND WIRE FOR INCANDESCENT LAMPS, RADIO TUBES, AND THE LIKE, Patented June 26, 1934 by Herbert C. Jennison, Bridgeport, Conn., assignor to The American Brass Company, Waterbury, Conn., a corporation of Conn.

This device includes a wire sealed in the press with one end adjacent thereto and a lead-in wire composed of copper containing manganese in amount from 0.001 per cent to approximately 0.25 per cent welded to the adjacent end.

No. 1,961,148, MACHINE FOR COPPER COATING WIRE, Patented June 5, 1934, by Joseph L. Herman, Peoria, Ill., assignor by mesne assignments, to The National City Bank of Cleveland, Cleveland, Ohio, a corporation, and John A. Chapman, Chicago, Ill., Trustees.

More particularly, this machine is adapted for coating iron or steel wire and the invention lies in the provision of a novel rinsing tank and means for conducting the wire thereto.

✦ ✦ ✦

No. 1,961,317, BALANCED SPIRAL FABRIC, Patented June 5, 1934, by Melcher G. Werme and Arthur H. Evans, Worcester, Mass., assignors to Edward C. Bower and Charles L. Feldman, receivers for Wickwire Spencer Steel Company, New York, N. Y., a corporation of Delaware.

This fabric is adapted for the construction of a conveyor belt and no heat treatment is required after uniting the connectors and spiral members of the belt, thus reducing the cost of the fabric as when welding is required.

✦ ✦ ✦

No. 1,961,667, METHOD OF COATING WIRE, Patented June 5, 1934 by Charles D. Johnson, Worcester, Mass., assignor to Johnson Steel & Wire Company, Inc., Worcester, Mass., a corporation of Mass.

The method comprises passing the wire through a straightening machine and then immediately passing the wire through an upwardly directed fountain of plating material.

✦ ✦ ✦

No. 1,961,668, WIRE REELER, Patented June 5, 1934 by Albert T. Kaufman, Freeman, S. Dakota.

This inventor provides a reel for barb wire so that the wire may be rolled into a compact roll, a device being associated with the roll for serving to unroll the wire.

✦ ✦ ✦

No. 1,961,962, ELECTRIC CABLE, Patented June 5, 1934 by Carl Cremer, Friedrichshagen, near Berlin, Germany.

This is a multi-core cable made up of several intercoil conductor cables each provided with a metal covering whose individual conductors consist of one solid wire of over ten square millimeters cross section.

✦ ✦ ✦

No. 1,962,859, COMPOUND WIRE, Patented June 12, 1934 by Charles Dietz and Joseph O. Whitely, York, Pa., assignors to The Dentists' Supply Company of New York, a corporation of New York.

More specifically, this patent covers a gold covered wire for anchoring pins for artificial teeth, the wire comprising a core of base metal, an immediate protecting covering of silver alloy, the alloy including a metal of the platinum group having a relatively high melting point, with an extreme outer covering of gold.

Exports and Imports of Wire

Exports of Iron and Steel Wire Products in May 1934 and May 1933
(In gross tons)

	May 1934	April 1934	May 1933
Wire rods	2,083	1,795	532
Hoops, bands and strip steel	2,732	3,109	1,706
Plain black or galvanized iron or steel wire	3,054	2,630	889
Barbed wire and woven wire fencing	3,544	3,184	2,755
Woven wire screen cloth	93	67	37
Wire rope	236	339	109
Insulated iron or steel wire and cable—see analysis below			
Other wire and manufactures	405	438	256
Wire nails	1,402	1,461	668
Tacks	51	45	27
Other nails, including staples	310	379	257
Bolts, machine screws, nuts, rivets and washers	436	451	264
Total, these 11 classifications	14,346	13,898	7,500

Imports of iron and steel wire and wire products into the United States
(In gross tons)

Concrete reinforcement bars	90	26	371
Hollow bars and drill steel	64	70	57
Merchant steel bars	1,923	2,074	1,099
Wire rods	1,236	1,208	961
Barbed wire	1,333	855	445
Round iron and steel wire	260	224	137
Telephone and telegraph wire	....	....	....
Flat wire and strip steel	92	131	87
Wire rope and strand	55	154	117
Other wire	3	61	108
Hoops, and bands	1,350	1,423	1,131
Nails, tacks and staples	456	615	485
Bolts, nuts and rivets	35	48	34
Total, these 13 classifications	6,897	6,889	5,032

RISING 40,214 tons exports of iron and steel in May—241,753 tons—fell short of the record March total of 261,269 tons by only 19,516 tons. The largest gain registered was that in skelp (30,840 tons), while other increases of moment include those in scrap (6,038 tons), seamless casing and oil line pipe (4,836 tons), ingots, etc., (2,192 tons), plain structural shapes (1,567 tons), and black steel sheets (1,013 tons). Offsetting these were losses led by welded casing and oil line pipe (1,062 tons). 'other' plate (1,039 tons), and tin plate (955 tons).

✦ ✦ ✦

JAPAN, was, as usual, the chief outlet for American iron and steel, taking in all 78,437 tons of which 73,124 tons was scrap, 1,870 tons was wire rods, and 1,741 tons was tin plate. Canada, on the strength of purchases including 31,882 tons of skelp, 5,795 tons of scrap, 3,417 tons of black steel sheets, 2,378 tons of steel bars, and 1,936 tons of plain shapes, was second with a total of 54,646 tons, to be followed by Italy whose total of 18,076 tons included 17,314 tons of scrap. Mexico was the month's fourth largest market with a trade amounting to 14,642 tons in which is included 8,826 tons of scrap, 1,345 tons of black steel sheets, and 1,070 tons of tin plate, while the entire 12,128-ton trade with Poland and Danzig was in scrap iron and steel.

✦ ✦ ✦

THE iron and steel imported into the United States during May totaled 29,465 gross tons—2,603 tons of nearly 10 percent more than was received in April. Leading the increases were gains of 1,761 tons in scrap iron and steel and of 751 tons in ferro-manganese and spiegeleisen, with the receipt of 443 tons of sheet steel piling from Germany.

✦ ✦ ✦

CANADA was the chief source of the iron and steel imported in May—her total of 9,910 gross tons including 6,955 tons of scrap, 1,978 tons of ferro-manganese and spiegeleisen, and 836 tons of pig iron. The Netherlands took second place with a total of 5,274 tons all of which was pig iron, while Belgium was third with 4,066 tons in which was included 1,716 tons of structural shapes, 1,005 tons of merchant steel bars, and 876 tons of hoops and bands. Germany was fourth with only 2,591 tons of which barbed wire accounted for 1,230 tons and sheet steel piling 443 tons, while Sweden supplied 2,129 tons of which 1,236 tons was wire rods.

✦ ✦ ✦

CARD clothing imports were halved in May as compared with April, only 18,587 square feet valued at $27,381 being received. Of this quantity 17,482 square feet valued at $24,455 came from the United Kingdom and the balance from Germany.

✦ ✦ ✦

WIRE cloth and screening imports were nearly doubled—the total of 62,102 square feet imported coming from Germany, 47,470 square feet, France, 7,130 square feet, Canada, 6,902 square feet, and the Netherlands, 600 square feet.

✦ ✦ ✦

FOURDRINIER and other paper making wires were imported at a rate nearly 50 percent greater than in April—May's total of 47,570 square feet including 32,320 square feet had from Austria, 6,200 square feet from France, 5,118 square feet from Sweden and 3,932 square feet from Germany.

✦ ✦ ✦

WIRE fencing and netting imports were sharply increased in May. Of the fencing galvanized before weaving 505,500 square feet were received — 490,500 square feet from Germany and 15,000 square feet from Belgium—while of that galvanized after weaving—981,950 square feet—964,350 square feet came from Germany and 17,600 square feet from Belgium.

✦ ✦ ✦

WIRE heddle imports were negligible in May, totaling only 1,646,000 with France the chief source (1,277,000) and with smaller quantities coming from Germany, Belgium, Denmark and Switzerland.

✦ ✦ ✦

EXPORTS of iron and steel wood screws during May, 1934 totaled 41,534 gross, valued at $4,642.

(*Please turn to page 255*)

'Round the World With the Wire Industry

Greek Market Possibilities

GREEK importers have recently expressed considerable interest over the sales possibilities of certain American iron, steel, brass and copper semi-manufacturers, and have made particular inquiry for black and galvanized sheets, steel wire, tin plate, copper and brass rods, tubes and plates. Excepting galvanized sheets (both plain and corrugated), practically none of the items mentioned have been imported from the United States in recent years. It is generally felt, however, that with the revaluation of the dollar it should be possible for American exporters to compete with traditional European sources of supply at this time. To take up the sales possibilities of certain individual items.

✦ ✦ ✦

BLACK steel wire, known in the local trade under the French name "fil machine", is used in Greece for the manufacture of nails, barbed wire, wire-netting, etc., and is imported in thicknesses of from 5 to 7 mm. being drawn and galvanized locally. The Greek market absorbs annually about 3,000 metric tons of this product which is drawn chiefly from Germany and Belgium. In addition about 4,000 tons of galvanized wire and wire rope are imported—principally from Belgium, Germany and England. In 1933, Germany supplied nearly 80 per cent of the $185,000 worth of copper and brass in sheets, tubes and rods imported into Greece.

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IT is believed that Greek importers would be receptive at this time to offers from American suppliers to determine whether American metal products could compete successfully with those offered by Continental exporters in the local market—the current opinion being to the effect that if this were to be the case the present would appear to be an opportune time to attempt to enter the Greek market.

Canadian Wire Fencing Sales

SALES of wire fencing, an important industry in Hamilton, Ontario, Canada, are stated to have increased 60 percent since early spring, one company shipping, according to report, at the rate of 200 tons per day.

✦ ✦ ✦

Wire Industry In China

WITH rising tariffs, numerous new industries have been started in China in recent years, among which is that of wire drawing and nail manufacture, the wire rods for which, of course, being imported. This industry was started about ten years ago, but little progress was shown until 1928 when tariff protection was given. The total capacity of the ten plants now engaged in this trade (which are all located in Shanghai) is approximately 1500 kegs of 100 lbs. per day of nails. In addition to nails, a variety of other products are turned out, including staples for tea chests, barbs, tacks, roofing nails, hoop nails, flooring nails, double pointed nails, and foundry nails. One plant includes galvanized wire fencing. By way of illustrating how this local production has affected the import trade, we learn that in 1924, 864,353 kegs (100 lbs. net) of iron and steel nails, ungalvanized were imported into China, and this trade in 1933 amounted to 83,056 kegs. There were but 10,968 kegs imported during the first quarter of 1934.

✦ ✦ ✦

Rolled Wire Restrictions in Germany

ACCORDING to a recent issue of the Deutsche Bergwerke-Zeitung, there are pending negotiations looking towards the restriction, or possibly the prohibition, of the importation and consumption of foreign rolled wire in Germany. An agreement is expected between the Association of Rolled Wire Manufacturers and consumers with respect to the existing difference in price between German and foreign rolled wire. Approximately 95 per cent of the members of the so-called Free Association of Wire Workers have already agreed to consume only German rolled wire.

✦ ✦ ✦

Notes of German Wire Trade

THE domestic trade in Germany has improved in June, and though the total volume of orders is less than in May, it is an increase over last year. For the first time in many months export business shows a certain though small improvement, orders coming chiefly from South Africa and South America.

✦ ✦ ✦

THE present quotations for steel wood screws are 82½—43½% off the British Standards list and for brass wood screws up to 70% off the same list. Although the outlook for an international settlement has improved in some quarters, other quarters have not come to an agreement.

✦ ✦ ✦

ORDERS concerning prohibition of the use of copper for cables do not include export business and heavy cables thicker than 25 mm. Aldrey (aluminum alloys) and Allautal, an alloy of similar composition and which had been extensively tried before, will be substituted. In the private industry, brass wire will be substituted as far as possible by aluminum wire and, where costs permit it, by stainless wire on which prices have recently been reduced.

✦ ✦ ✦

NEGOTIATIONS between the IWECO and export merchants concerning a possible restriction of business with Japanese wire manufacturers have not been successful. Due to this, Japanese business is still on the increase.

(*Please turn to page 260*)

Outstanding Personalities of the Wire Industry

WHEN a person does any one thing steadily for fifty-five years it is worthy of remark. When that person starts practically penniless, keeps going through ups and downs, prosperous one time and broke another, finally to attain assured success and the worldly rewards that go with it and can look back over his past and say: "I'm the happiest man in the world today," it certainly is unusual and, perhaps, worthy of rather extended remarks in the telling of it.

✦ ✦ ✦

SUCH a man is John C. Campbell, president of the Newark Wire Cloth Company.

✦ ✦ ✦

FROM his humble beginning on a borrowed $210, with which he bought three old fashioned hand looms, Mr. Campbell has built his business until it is one of the most modern plants for wire weaving in the world.

JOHN C. CAMPBELL
President Newark Wire Cloth Co.

MANY of the machines in use in Mr. Campbell's factory are the result of dreams that he has made come true. Many of the up-to-date methods are his. Opposition and resistance may be held accountable for the accomplishment of the previously considered impossible, for they spurred onward as no other incentive would have.

✦ ✦ ✦

AN instance of this was the pronouncement of the Government Bureau of Standards that certain much desired wire cloth for testing sieves could not be had in uniform grades. It had for many years attempted to bring testing sieves within standard. Shortly before the World War, when the need became acute, Mr. Campbell tackled the job and now produces

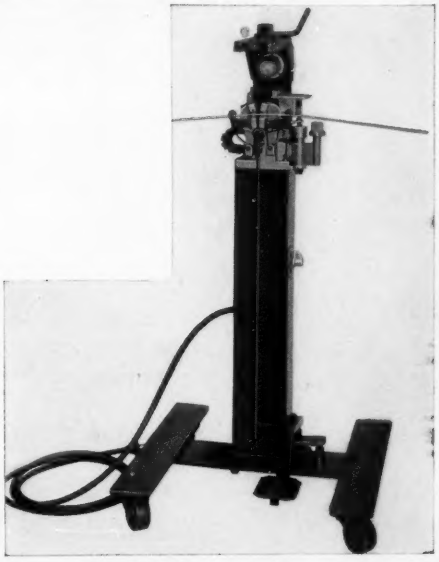
(*Please turn to page 257*)

MICROMETER PRECISION MICRO-WELD TRADE MARK REG. U. S. PAT. OFF.

Micro-Weld Butt Welders

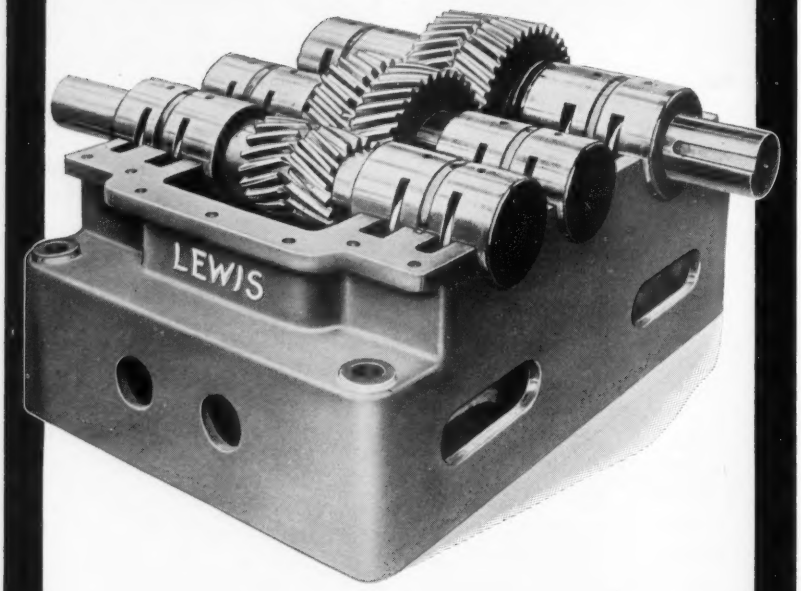
The increasing use of these efficient butt welders by leading wire manufacturing and fabricating plants throughout the world, is evidence of the superiority of MICRO-WELD design and construction.

Only MICRO-WELDERS are equipped with the patented MICRO-WELD adjustment dials for making precision welds faster.



MICRO PRODUCTS COMPANY
20 NORTH WACKER DRIVE, CHICAGO, ILL.
Telephone State 7468 General Offices and Factory, Peoria, Ills.

LEWIS HIGH SPEED GEAR SET



FOR CONTINUOUS ROD MILL

Lewis High Speed Gear Sets are in use where quality and efficiency really count. The largest and most up-to-date rod mill unit in the world utilizes Lewis Gear Sets for driving its roll stands.

Lewis gear housings are of two piece type with special alloy forged steel herringbone cut tooth gears running in babitted shell type or roller bearings. One Lewis gear set is used for driving two roll stands which is a special feature for controlling roll speeds when driven by either individual motors or bevel gear drives. Lewis gear sets are totally enclosed and gears and bearings run continuously in oil.

Lewis Engineers will gladly cooperate with you in designing special machinery to meet your problems.

LEWIS

PITTSBURGH, PA.

LEWIS FOUNDRY & MACHINE CO.

The Manufacture of Suspension Bridge Wire

(*Continued from page 244*)

acid brittleness at this point can be attained by placing a pre-heater between the acid cleaning and zinc pan, heating the wire to 400 to 450 deg. Fahr. before it is immersed in the molten zinc.

✦ ✦ ✦

The Zinc Bath

LASTLY, the wire passes into the galvanizing tank. The zinc used should be of the highest quality, either electrolytic or horsehead brand. The steel and zinc form a surface alloy, and is especially well bonded, because of the high carbon content of bridge wire. The zinc bath should have a uniform temperature throughout, closely controlled at from 880 to 900 deg. Fahr. About 15 ft. of the wire will be immersed in the zinc continuously; the time of immersion will vary with the speed. The exit "sinker" which holds the wire under the zinc will be of a roller type, for the reason that bridge wire is not run through asbestos wipers. Instead the wire leaves the molten zinc vertically, and passes up to sheaves placed approximately 25 ft. above the pan. On top of the molten zinc is a charcoal header with a six-inch bed of finely granulated charcoal mixed with beef tallow. This assures a smooth distribution of the zinc about the surface of the wire. To pass five immersions of the Preece test a minimum of 1.25 oz. of zinc per sq. ft. of surface must be evenly deposited on the wire.

✦ ✦ ✦

The Take-up Frame

THE top sheaves previously mentioned lead to the blocks of the take-up frame, which are 60 or 72 in. diameter (as the erectors specify). Prior to shipment each coil should be tested to assure the purchaser that the wire meets his specifications.

THE aforementioned method of galvanizing may be considered orthodox; however, it is to be borne in mind that there are other patented methods, as well as electro-galvanizing methods that could be adaptable to the galvanizing of bridge wire.

✦ ✦ ✦

Conclusion

MANY improvements have been accomplished by the wire industry, during the past few decades, particularly in the handling of material, equipment, wire drawing practice, temperature control and methods of inspection. Bridge wire is in a class by itself, however; it is to carry a live load, and it is subjected to exceptionally high and enduring stresses. Its manufacture requires, from the very first stages through to the final testing, the closest kind of supervision and coordination. The paramount aim and thought of the manufacturing organization must be for the "safety of the live load."

✦ ✦ ✦

Exports And Imports

(*Continued from page 251*)

Of this total Mexico took 24,235 gross, valued at $1,389; Cuba 4,599 gross, valued at $505; Canada 3,657, valued at $1,518; Panama 1,760 gross, valued at $343; Philippine Islands 1,680 gross, valued at $190; Venezuela 1,310 gross, valued at $96.

✦ ✦ ✦

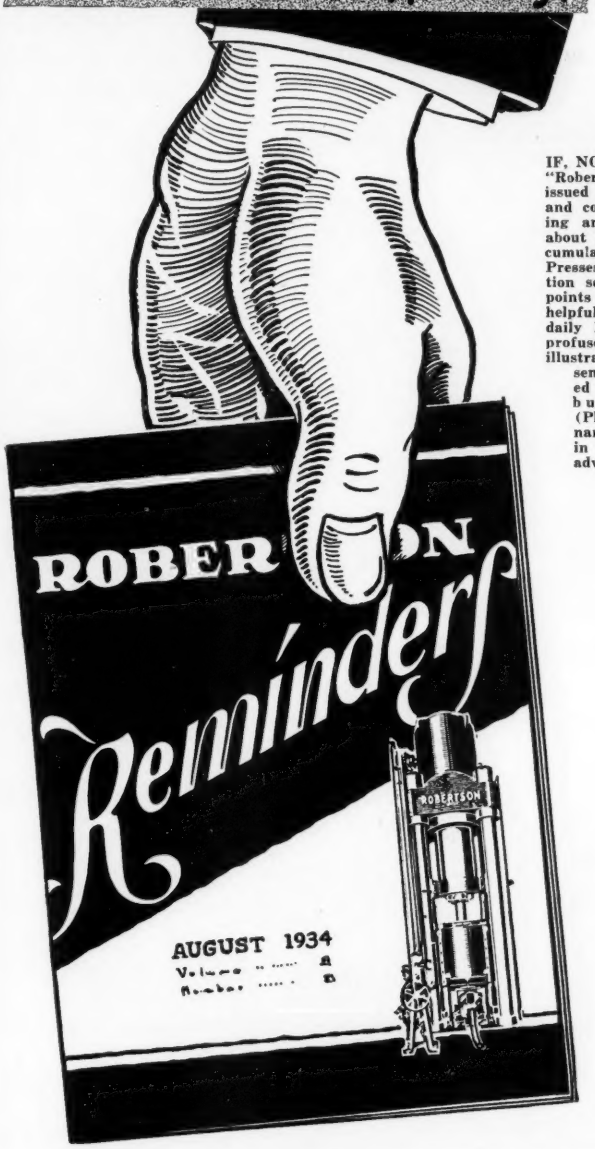
EXPORTS of brass wood screws totaled 3,334 gross, valued at $1,455. Of this amount Canada took 1,163 gross, valued at $822; Philippine Islands 754 gross, valued at $190; Brazil 318 gross, valued at $70; Cuba 282 gross, valued at $97; Peru 230 gross, valued at $66.

✦ ✦ ✦

IMPORTS of wood screws during the same period amounted to nothing. There were none.

IMPORTS of wood screws during April, 1934 amounted to 6,503 gross, valued at $520. Of this total Sweden took 65,000 gross, valued at $516. These figures were omitted from the July 1934 issue.

Are you receiving THIS BOOK *Regularly?*



IF, NOT, you'll want to . . . "Robertson Reminders" is issued every now and then and contains much interesting and useful information about Hydraulic Pumps, Accumulators, Extrusion Presses, etc.,—and in addition some ideas and viewpoints which we feel may be helpful in the living of one's daily life. This Booklet is profusely and interestingly illustrated and will be gladly sent to anyone interested upon request on their business letterhead. (Please mention the name of the publication in which you saw this advertisement).

Robertson equipment includes: Extrusion Presses, Hydraulic Pumps, Melting Furnaces, and Pots, Dies and Cores, Strippers, etc. The new Hydraulic Pressure Pump is built for pressures of 2000 lbs. to 6000 lbs. The presses are available in capacities of 50 to 3000 tons.

John ROBERTSON CO. INC. — *Pioneers–Since 1858*

125-137 Water Street — Brooklyn, N. Y.

New Type 24 Block Patenting Furnace Take-up

DEVELOPED to reduce power demands and with a requirement of trouble-free operation, the new 24-Block Patenting Furnace Take-up built recently by **Sleeper & Hartley, Inc.**, Worcester, Mass., wire mill equipment specialists, features a center drive.

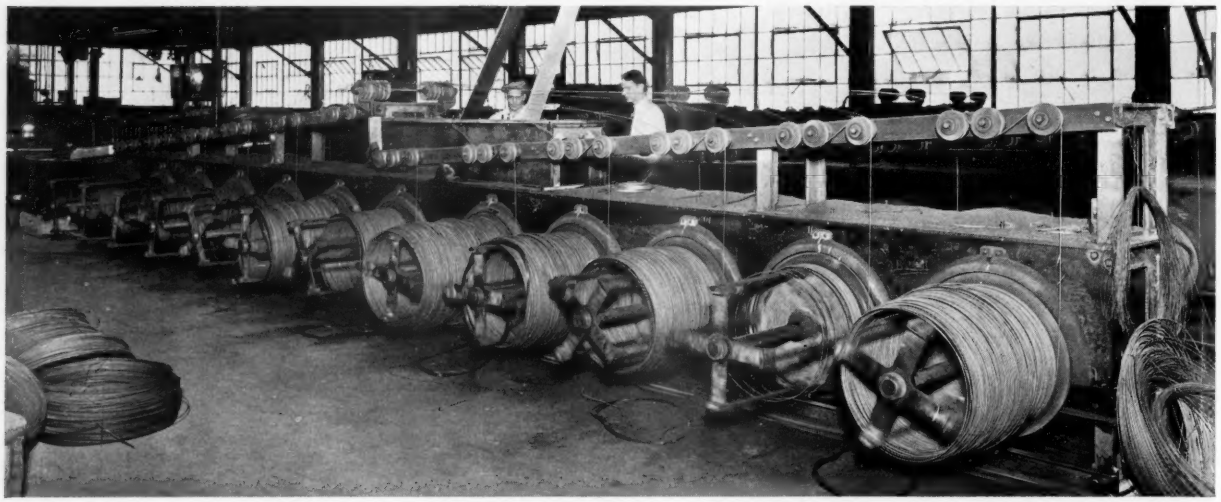
✦ ✦ ✦

PREVIOUS take-ups have all been driven from the end of the machine away from the heat of the furnace, but this principle threw tremendous strains onto the gear reduction as the numerous blocks took up their loads.

✦ ✦ ✦

THIS tremendous strain, which formerly made heavy demands on the machine and the drive unit,

(*Please turn to page 260*)



New Type 24 Block Patenting Furnace. Sleeper & Hartley, Inc.

NICKO

A PICKLING STABILIZER ▲ ▲ ▲
FOR STAINLESS STEEL ▲ ▲ ▲
WIRE AND STRIP ▲ ▲ ▲

USED IN DILUTE SULPHURIC ACID
RAPID—FUMELESS—SAFE

AN EXCELLENT INHIBITOR ON 18 - 8
▲ ▲ ▲ METAL LOSS ABOUT ONE - TENTH NORMAL ▲ ▲ ▲

▲ ▲ ▲

DELANY CHEMICAL CO.

COTTMAN AND MILNOR STS.,
PHILADELPHIA, PA.

(*Continued from page 253*)

testing sieves that the bureau certifies.

✦ ✦ ✦

MR. CAMPBELL got his start in the Stephens Mills, later on the DeWitt Wire Cloth Company, in Belleville. His grandfather, Humphrey Wilson, was superintendent of the Stephens mills.

✦ ✦ ✦

MR. CAMPBELL worked many years for the DeWitts and for the late John Eastwood. Then came his big chance. Andy Boylan died and his estate had for sale his three antiquated hand looms for weaving wire cloth. Campbell wanted those and so did others. Cash was the consideration and $200 then was as great as a much larger sum these days. Campbell borrowed and bought. Then he borrowed $10 to buy raw stock and he was a manufacturer.

✦ ✦ ✦

SOME pretty hazardous years followed. They were not all lean—but many were—and not infrequently was the taste of turkey almost forgotten in the Campbell family. "But I kept on trying to make the best wire cloth to be had," said Mr. Campbell today. "I knew weaving and I was not afraid of hard work. Now, weaving knows me, after over fifty years of having me around, and, though I do putter about the factory a little, I now leave it to better and younger men. And I'll try to see they get a fair and square deal, too, which is something I didn't always have."

✦ ✦ ✦

THE present modern factory of the Newark Wire Cloth Company is at Verona avenue and Manchester place on a three and a half acre plot. The main building is 310 feet long and has a clear span of 100 feet for its width. It was built in 1923 of tile and concrete and one of Mr. Campbell's sons was architect, engineer and builder.

(*Please turn to page 258*)

INDISPENSABLE!

THREE WIDELY USED OAK DRAWING LUBRICANTS

Super Draw No. 5
Master Draw No. K
For copper, brass and phosphor bronze.

Master Draw No. 2
For steel and alloy steel wire. Particularly adaptable to draw bench work.

Master Draw No. 425
For drawing bars and shapes, (high or low carbon) on draw benches, WITHOUT LIME COAT.

Proper drawing lubricants are as indispensable as the machines on which your products are drawn. Your lubricants should be fitted to local conditions and to the brass, bronze, steel or copper.

The Oak Chemical Products Company will be glad to assist you in the determination of the right lubricant. Your inquiry will receive prompt, careful attention without obligation to you. Write today!

OAK CHEMICAL PRODUCTS COMPANY
Bechtelsville, Pa.

LUBRICANTS FOR COLD DRAWING ANY TYPE OF METAL

Promote increased die-life in Wire Drawing by using
Bell-Mine Pulverized Lime

For years this lime has given satisfaction in regular use. Names of plants and experienced users will be given gladly on request.

AMERICAN LIME AND STONE CO.
(OPERATING UNDER N. R. A. LIME CODE)
PLANT and EXECUTIVE OFFICE: BELLEFONTE, PA.
Sales Offices: PITTSBURGH PHILADELPHIA NEW YORK CITY

Bell-Mine Product

See That Steam Jet In The Corner Of The Tank?

▲ ▼ ▲

That's the fellow that helps keep down the cost of using Muriatic Acid.

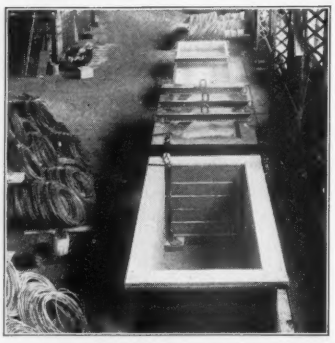
▼ ▲ ▼

It is made of **Durichlor** which is almost entirely resistant to Hydrochloric Acid in all concentrations and at all temperatures up to the boiling point.

And the Jet speeds up the pickling process. It completely circulates the pickle liquor, heats up the tank contents in jig time, cuts down steam requirements, doesn't pound a tank to pieces, and makes for better pickling results.

Bulletin 165 has, among other things, a table for figuring steam requirements in pounds per hour. Write for it.

▼ ▲ ▼

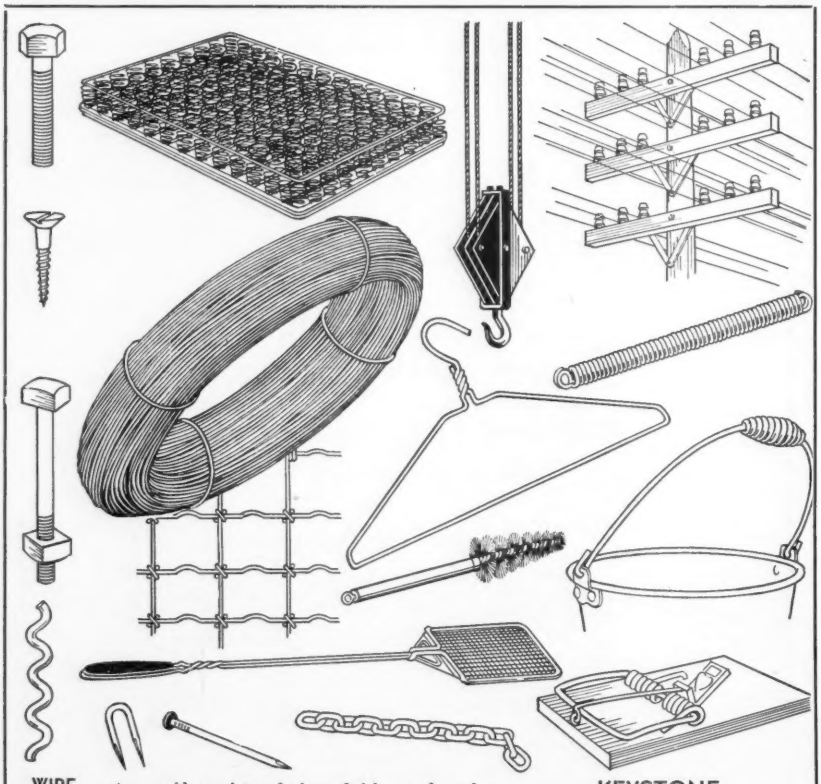


Other Durichlor Products for Wire Mills:

Pumps—Valves
Pipe — Ejectors
Exhaust Fans
Tank Outlets
Agitators, Etc.

The Duriron Company, Inc.

442 N. FINDLAY ST., DAYTON, OHIO



WIRE . . . in a wide variety of sizes, finishes and analyses for the manufacture of products that require a special wire. Your inquiry will receive the careful attention of an organization experienced in furnishing uniform high quality wire that improves your product and reduces its cost.

KEYSTONE STEEL & WIRE CO.
PEORIA, ILL.

Outstanding Personalities of the Wire Industry

(*Continued from page 257*)

Dr. James Carlton Stitt

DR. JAMES CARLTON STITT, Ll.D., who practiced for many years as a naval architect, died at Liverpool recently, aged 82. After retiring from his profession he was invited to become a member of the board until the company was bought by the late Sir John Ellerman.

✦ ✦ ✦

MR. STITT was made a director of the British Insulated Wire Co., Ltd., in 1901, and when amalgamation between that concern and the Telegraph Manufacturing Co. of Helsby took place under the name of British Insulated & Helsby Cables, he joined the board, retiring from it after 28 years' service. He did much public work as an educationist and in 1905 became a member of the Council of Liverpool University, and was the first and only chairman of the Fabric Committee. Four years ago the University conferred upon him the honorary degree of Ll.D. He was widely known in the wire Industry.

✦ ✦ ✦

Stretching and Packing Fourdriner Wires

(*Continued from page 245*)

braced for stiffness, and which are often lined with various packings to ease the shocks likely to be suffered in handling. Covers are secured with screws, to facilitate customs inspection.

✦ ✦ ✦

Renew Wire Nail Standards

SIMPLIFIED practice recommendation covering copper wire nails, effective Dec. 1, 1933, was reaffirmed without change as of July 1, by the division of simplified practice of the national bureau of standards.

A Modernized Rod Cleaning Installation

(*Continued from page 239*)

work of the crane operator and eliminate assistance.

Trucks

AT the rod shed end there is an arrangement of twelve specially constructed trucks, each wheel equipped with roller bearings and wheel faces of sufficient width to permit trucks to be easily pushed on the floor to any location; more flexibility is obtained by not confining them to industrial rails or channel tracks. To assist further in easy movement of the trucks a ¼" to the foot grade was incorporated in the floor construction sloping towards the crane hook. These trucks are loaded by the rod shed crane and a reserve storage of 12 tons is always available.

✦ ✦ ✦

Rod Baking Unit

THE rod baking unit is of the recirculating type, oil fired as furnished by the Mahr Manufacturing Company, and has two alleys of sufficient length to take six loads per alley. The handling at this end of the system is still a temporary arragement insofar as the complete handling of rods through the baker on hair pin hooks to a transitory storage or direct to drawing blocks are concerned, but studies in this part of the plant indicate that savings of outstanding importance can be made by the elimination of re-handling and predetermined routes of travel on overhead Tramrail track, and the installation is just a matter of assembling all data to present, for justification of this expenditure.

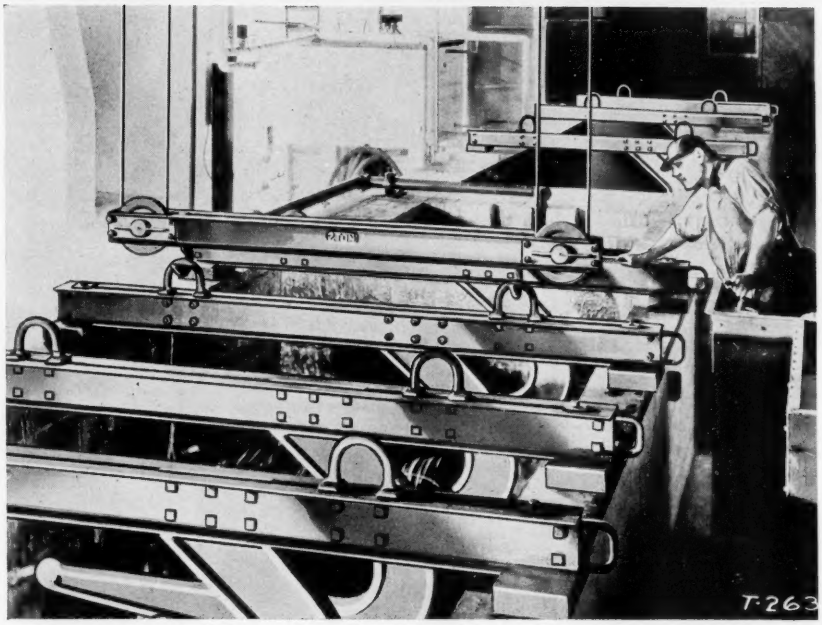


Photo No. 2. Continuation of concrete shell serves as a sull rack and lime tub.

Gilby Wire Company Declares Dividend

GILBY WIRE COMPANY, Newark, New Jersey recently announced through its President, Wilbur B. Driver, a dividend of ten cents per share on the no par stock of that company payable June 15. This was the first distribution to stockholders in three years.

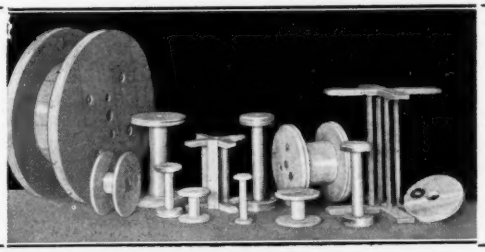
✦ ✦ ✦

GILBY WIRE COMPANY manufactures Pure Nickel and alloys in various forms for radio tubes, and "Tophet," Nickel-Chrome resistance wire for electric heating appliances, and employs at present 150 people. They are now arranging to incorporate their business in France as a separate French company under the name of Gilby Wire Company Société Anonyme. Their French factory is located in Puteaux, near Paris.

Make your plans now to attend the - -
Wire Association Meeting at New York, October 1-5, 1934
For Information Address Richard E. Brown, Secretary
The Wire Association 17 East 42nd St., New York, N. Y.

WIRE BRAIDING MACHINES
SINGLE, DOUBLE OR TRIPLE DECK
VERTICAL OR HORIZONTAL TYPE
Designed and constructed to insure an efficient and profitable output.
Write for complete information today.
NEW ENGLAND BUTT COMPANY
Dept. W-8, Providence, R. I.
CHICAGO OFFICE—20 NORTH WACKER DRIVE

WOODEN SPOOLS ROLLS and BOBBINS For WIRE and CORDAGE MILLS



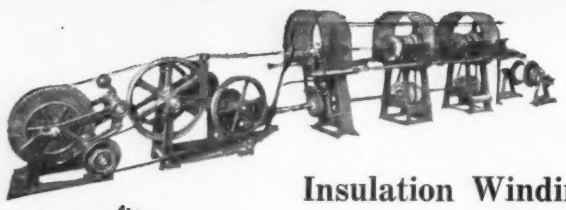
WRITE FOR PRICES
✦ ✦ ✦
AVOCA MFG. CO.
AVOCA, N.Y.

Learn about PARALAN

Paralan will give your finished wire and wire products protection from atmospheric corrosion in the mill and in shipping. Paralan-coated wire can be spot welded or soldered without cleaning. Also, Paralan leaves surfaces in good condition for all types of finishes—enameling, japanning, lacquering, plating, etc.

Write for further information. We may be able to solve your difficulties.

AMERICAN LANOLIN CORP.
LAWRENCE, MASSACHUSETTS



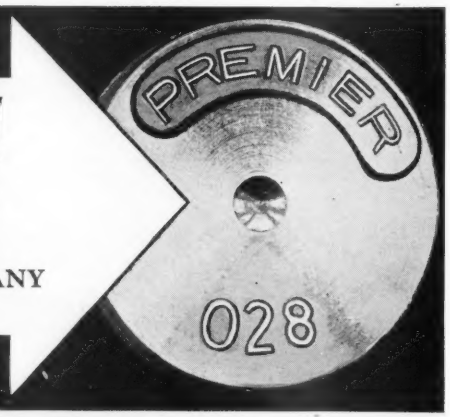
HIGH SPEED BALL-BEARING

Insulation Winding Machine

for applying two tapes from concentric rolls and a cotton binder. Machine has automatic stops for broken tapes or exhausted rolls of tape. Can be built for any number of tapes.

EST. 1865 AIMCO INC. 1915
"American" INSULATING MACHINERY COMPANY
517 West Huntingdon St.
PHILADELPHIA PENNSYLVANIA U.S.A.

"PREMIER"
Trade Mark Reg. U. S. Pat. Off.
Diamond Dies
made by
DRIVER-HARRIS COMPANY
Harrison, N. J.



VIANNEY
Famous Wire Drawing Diamond Dies
Largest Stock in U. S. A.
from .00039 to .080
GUARANTEED WEIGHTS ONLY
VIANNEY WIRE DIE WORKS
250 East 43rd St., New York

New Type 24 Block Patenting Furnace

(*Continued from page 256*)

has now been sliced in half. The result has been not only a reduction in power required, but a very definite improvement in performance. It was found that when the drive was concentrated at one end of the machine that the blocks at the other end turned with a surging or "jumpy" rotation, which had its effect on the wire coming through the furnace. This fault has been done away with in the new machine, which naturally makes for smooth operation and a more uniform product.

✦ ✦ ✦

THIS machine is of exceptional construction. All bearings are extra heavy. The drive is through cut gears and roller-chain control of the block speed being by variable speed transmission. All bearings and the complete drive are encased as a protection against dirt, scale and heat, yet the lubrication points, reduced in number, are easily reached without stopping the machine.

✦ ✦ ✦

Round the World with the Wire Industry

(*Continued from page 252*)

THE reports that the Dutch wire nail works of Helmond will reopen, have not been confirmed. On the contrary it is expected that the works will remain closed, a subsidy being paid to the owners by the IWECO.

✦ ✦ ✦

Polish Rod Business

POLISH wire rod competition is great. Poland is not a member of the international wire rod syndicate and is, therefore, able to undersell prices materially. Polish wire rods are offered at rather low prices, particularly in the Far East and North European markets. Sweden is also a great competitor and has quickly conquered the American market and is now competing against continental wire rods in Great Britain. It is probable that the continental wire rod cartel will have to reduce prices further.

'Round the World With the Wire Industry

(*Continued from page 260*)

South Africa Buying Wire Machinery

SOUTH AFRICA is in the market for wire machinery, particularly wire netting, barbed wire and fencing wire machinery. Inquiries are pending and the industry expects to book some orders. Otherwise the wire machinery export business is low. The European market shows some interest but orders from the Far East have never been as low as at present. Orders from the United States are nil, whereas ordinarily they are regular buyers of wire nail machinery.

✦ ✦ ✦

THE establishment of new wire nail and wire manufacturing plants is made subject to a special Government permission which will be granted only in special cases. Works can install modern labor saving machinery if they do not reduce the number of operators on the payroll.

✦ ✦ ✦

Germany Applies Bartering Principle To South American Markets

WIRE is increasing as one of the "barter" products. Importers of Central American bananas and coffee have been informed that they will only be able to continue to buy these products and sell theirs in Germany if they use their influence on the sellers in Central America to buy wire for plantation fencing and other products, in Germany. This pressure has already led to the desired result and orders have been placed.

✦ ✦ ✦

THE **Duriron Company**, of Dayton, Ohio, manufacturers of acid and alkali handling equipment, have started construction of an extension to their alloy steel foundry which just doubles the size of the present plant.

✦ ✦ ✦

THE new equipment will be installed as soon as the extension is under cover. Additional electric induction furnaces will be installed.

BALLOFFET
The Quality Diamond Dies
1870 1934
BALLOFFET DIAMOND WIRE DIES CO. INC.,
13-15 East 22nd Street, New York City
Factories in France: Lagnieu-Cluses-Trevoux

BISCO
TUNGSTEN CARBIDE DIES
FOR
WIRE, ROD and TUBING
BARE NIBS—SEMI-FINISHED—FINISHED
ROUND AND SPECIAL SHAPES
THE BISSETT STEEL COMPANY
CLEVELAND
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EFFICIENT PICKLING
REQUIRES "RODINE"
RODINE, SAVES ACID AND METAL
Prevents over-pickling. Minimizes acid brittleness and acid fumes.
Samples and Directions sent on request.
AMERICAN CHEMICAL PAINT CO.
AMBLER, PA.
Detroit Office & Warehouse 6339 Palmer Ave.; E.

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To Attend The
Wire Association Meeting
At New York
October 1-5, 1934

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THING WELL"
NEP. 100%
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JUST WEST of B'WAY
NEW YORK
1000 ROOMS
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Circulating Ice Water . . . Radio . . .
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OTHER UNUSUAL FEATURES
SUN-RAY HEALTH LAMPS
Roof Solarium . . . Air-Cooled Restaurant
ROOMS from $2.50 SUITES from $6.00
IN THE HEART OF TIMES SQUARE

PAPER CABLE FILLER
FOLDED PAPER FLATS
PAPER INSULATION YARNS
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Formerly National Patent Reed Co.
3rd & Somerset Sts. Phila., Pa.

Continuous Straightening and Cutting Machinery
With
FLYING SHEAR
for round and shaped wire.
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THOMASTON CONNECTICUT

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Phone 5-6033

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Practical Engineering
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MORGAN CONSTRUCTION CO.
WORCESTER, MASS.

Wire Mill Equipment, Stranding, Insulating, Drawing, Welding
Thomson-Judd Wire Machinery Co.
Subsidiary of
Thomson-Gibb Electric Welding Co.
Lynn, Massachusetts.

BRASS AND ZINC WIRE
THE PLATT BROS. & CO.
WATERBURY, CONN.

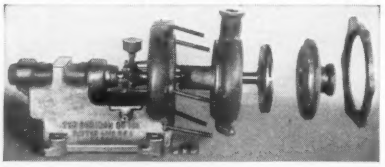
MACHINERY WANTED
No. 3 Eight Die Waterbury up-right pulley and clutch or motor drive, 8 or 12″ finishing block. Apply Box No. 4, c/o Wire & Wire Products, 17 East 42nd St., New York, N. Y.

MACHINERY WANTED
20 head enameling machine, American Insulating Type No. R-16, capacity down to .001. Apply Box No. 5, Wire & Wire Products, 17 East 42nd St., New York, N. Y.

New Duriron Data on Acid Pumps

THE Duriron Company, Dayton, Ohio, has just issued a new bulletin on centrifugal pumps for acids and alkalies. It covers a new series of pumps just brought out and gives the general instruction. Separate inserts will be issued on each pump giving the capacities, dimensions and rating charts. Included in the general bulletin, is a brief analysis of the different corrosion-resisting alloys in which the pumps are procurable.

✦ ✦ ✦



FEATURES of the new pumps include a one-piece base with extra large clamping yoke cast integral; the volute is held under compression eliminating strain; closed type impellers are used with two or more sizes for each pump; bearings are removable bronze sleeves made of a special alloy, and the assembly is extremely simple. Several of the models are available in self-priming types as well as the standard centrifugal.

✦ ✦ ✦

THE bulletin, No. 172, will be mailed to anyone upon request, and the mentioning of this publication will be appreciated.

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2,000 pound wire tensile strength testing machine with one or more lower ranges, motor driven, several speed changes preferred. Apply Box 6, Wire & Wire Products, 17 E. 42nd St., New York, N. Y.

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Rod Frames—16″ Frames, 8″ Frames —Take-Up Frames, Wire Pointers—Puller Tongs.
General Castings for Wire Mill use.
Circulars on Request.
E. J. Scudder Foundry & Machine Co.
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HIGH SPEED
Welding Wire Straightening and Cutting Machinery
Round Wire Straightening and Cutting Machinery
Flat Wire Straightening and Cutting Machinery
Roll and Rotary Wire Straighteners
THE F. B. SHUSTER CO.
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For more complete information, consult the annual Directory, Index & Buyers' Guide.

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See Furnaces—Various Headings

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ARMORING EQUIPMENT
Amer. Insulating Mach'y Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Watson Machine Co., Paterson, N. J.

BAKERS
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

CASTINGS—Wire Mill
E. J. Scudder Foundry & Machine Co., Trenton, N. J.

CHEMICALS—Cleaning
American Chemical Paint Co., Ambler, Pa.
Delany Chemical Co., Tacony Station, Philadelphia, Pa.
Grasseli Chemical Co., Cleveland, O.

CLEANING & PICKLING EQUIPMENT
Broden Construction Co., Cleveland, O.
Duriron Co., The, Dayton, O.
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

COATING—Protective
American Lanolin Corp., Lawrence, Mass.

COILERS—Sheet and Wire
H. J. Ruesch Machine Co., Newark, N. J.

CRANES—Wire Mill
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

DIES—Diamond
Balloffet Diamond Wire Dies Co., Inc., N. Y. C.
Cochaud Wire Die Co., New York.
Driver-Harris Co., Harrison, N. J.
Kelly Wire Die Corp., New York, N. Y.
Vianney Wire Die Works, New York.

DIES—Lead Extrusion
John Robertson Co., Brooklyn, N. Y.

DIES—Repairs & Re-Cutting
Cochaud Wire Die Corp., New York.
Driver-Harris Co., Harrison, N. J.
Firth-Sterling Steel Co., McKeesport, Pa.
Kelly Wire Die Corp., New York, N. Y.
Vianney Wire Die Wks., N. Y.

DIES—Rod and Tube Drawing
Bissett Steel Co., Cleveland, O.
Carboloy Co., Inc., Newark, N. J.
Firth-Sterling Steel Co., McKeesport, Pa.
Kelly Wire Die Corp., New York, N. Y.
Vianney Wire Die Works, New York, N. Y.

DIES—Tantalum Carbide
Bissett Steel Co., Cleveland, O.
Kelly Wire Die Corp., New York, N. Y.
Vianney Wire Die Works, New York, N. Y.

DIES—Tungsten Carbide
Bissett Steel Co., Cleveland, O.
Carboloy Co., Inc., Newark, N. J.
Driver-Harris Co., Harrison, N. J.
Firth-Sterling Steel Co., McKeesport, Pa.
Kelly Wire Die Corp., New York, N. Y.
Vianney Wire Die Works, New York, N. Y.

DRAW BENCHES
H. J. Ruesch Machine Co., Newark, N. J.
Scudder, E. J., Fdry. & Machine Co., Trenton, N. J.
Vaughn Machinery Co., Cuyahoga Falls, O.

ENGINEER—Consulting Wire Mill
Lewis, Kenneth B., New York, N. Y.

EYELETS—Zinc
Platt Bros. & Co., The, Waterbury, Conn.

FILLERS—Paper for Cable
E. W. Twitchell, Inc., Phila., Pa.

FURNACES—Annealing
Electric Furnace Co., Salem, O.

FURNACES—Automatic
Electric Furnace Co., Salem, O.

FURNACES—Bright Annealing
Electric Furnace Co., Salem, O.

FURNACES—Electric
Electric Furnace Co., Salem, O.

FURNACES—Lead Melting
Electric Furnace Co., Salem, O.
John Robertson Co., Brooklyn, N. Y.

FURNACES—Non-Oxidizing
Electric Furnace Co., Salem, O.

FURNACES—Wire
Electric Furnace Co., Salem, O.

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W. H. Spowers, Jr., New York, N. Y.

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Delany Chemical Co., Tacony Station, Philadelphia, Pa.
Grasseli Chemical Co., Cleveland, O.
Wm. M. Parkin & Co., Pittsburgh, Pa.

INSULATION—Cable or Cable Filler
E. W. Twitchell, Inc., Phila., Pa.

LATHES—Die Reaming
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

LIME—Pulverized
Amer. Lime & Stone Co., Bellefonte, Pa.

LUBRICANTS—Wire Drawing
R. H. Miller Co., Homer, N. Y.
Oak Chemical Co., Bechtelsville, Pa.

MACHINERY—Armoring (Cable, Wire Hose)
American Insulating Mach'y Co., Phila., Pa.
New England Butt Co., Providence, R. I.
John Robertson Co., Brooklyn, N. Y.
Sleeper & Hartley, Inc., Worcester, Mass.
Thomson-Gibb Electric Welding Co., Lynn, Mass.
Watson Machine Co., Paterson, N. J.

MACHINERY—Braiding
New England Butt. Co., Providence, R. I.
Textile Machine Works, Reading, Pa.
Watson Machine Co., Paterson, N. J.

MACHINERY—Brazing
Thomson-Judd Wire Machinery Co., Lynn, Mass.

MACHINERY—Bunching
Amer. Insulating Mach'y Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Watson Machine Co., Paterson, N. J.

MACHINERY—Bundling
Sleeper & Hartley, Inc., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.
Watson Machine Co., Paterson, N. J.

MACHINERY—Cable, Electric
American Insulating Machinery Co., Philadelphia, Pa.
New England Butt Co., Providence, R. I.
Thomson-Gibb Electric Welding Co., Lynn, Mass.
Watson Machine Company, Paterson, N. J.

MACHINERY—Chain Making
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Closing
New England Butt Co., Providence, R. I.
Watson Machine Co., Paterson, N. J.

MACHINERY—Coil Winding
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Coilers
Broden Const. Co., Cleveland, O.
H. J. Ruesch Machine Co., Newark, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Watson Machine Co., Paterson, N. J.

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Sleeper & Hartley, Worcester, Mass.

MACHINERY—Enameling
American Insulating Mach'y Co., Phila., Pa.

MACHINERY—Extruding
John Robertson Co., Brooklyn, N. Y.
John Royle & Sons, Paterson, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Flat Wire
Broden Construction Co., Cleveland, O.
H. J. Ruesch Machine Co., Newark, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Forming
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Galvanizing Wire
Broden Construction Co., Cleveland, O.
Sleeper & Hartley, Inc., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Gang Winders
H. J. Ruesch Machine Co., Newark, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Insulating
American Insulating Machinery Co., Phila.
New England Butt Co., Providence, R. I.
John Royle & Sons, Paterson, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Lead Encasing Presses, ets.
John Robertson Co., Brooklyn, N. Y.

MACHINERY—Lead Stripping
John Robertson Co., Brooklyn, N. Y.
Watson Machine Co., Paterson, N. J.

MACHINERY—Lock Washer
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Magnet Wire
American Insulating Mach'y Co., Phila., Pa.
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Measuring Wire & Cable
New England Butt Co., Providence, R. I.
Watson Machine Co., Paterson, N. J.

MACHINERY—Nail
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Panning
American Insulating Machinery Co., Phila.

MACHINERY—Pointing
Broden Construction Co., Cleveland, O.
H. J. Ruesch Machine Co., Newark, N. J.
E. J. Scudder Foundry & Machine Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Rod Mill
Broden Construction Co., Cleveland, O.
Morgan Const. Co., Worcester, Mass.
H. J. Ruesch Machine Co., Newark, N. J.
Lewis F'dry & Machine Co., Pittsburgh, Pa.

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Lewis F'dry & Machine Co., Pittsburgh, Pa.
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New England Butt Co., Providence, R. I.
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Watson Machine Co., Paterson, N. J.

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John Royle & Sons, Paterson, N. J.
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Sleeper & Hartley, Inc., Worcester, Mass.

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American Insulating Mach'y Co., Phila. Pa.
Broden Construction Co., Cleveland, O.
H. J. Ruesch Machine Co., Newark, N. J.
E. J. Scudder Foundry and Machine Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Watson Machine Co., Paterson, N. J.

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American Insulating Machinery Co., Phila.
Vaughn Machinery Co., Cuyahoga Falls, O.
Watson Machine Co., Paterson, N. J.

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MACHINERY—Staple
Sleeper & Hartley, Inc., Worcester, Mass.

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Hallden Machine Co., Thomaston, Conn.
H. J. Ruesch Machine Co., Newark, N. J.
F. B. Shuster, New Haven, Conn.
Sleeper & Hartley, Inc., Worcester, Mass.

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Sleeper & Hartley, Inc., Worcester, Mass.
Thomson-Judd Wire Machinery Co., Lynn, Mass.
Watson Machine Co., Paterson, N. J.

MACHINERY—Strip Steel
Broden Const. Co., Cleveland, O.
Lewis F'dry & Machine Co., Pittsburgh, Pa.
H. J. Ruesch Machine Co., Newark, N. J.

MACHINERY—Swaging
H. J. Ruesch Machine Co., Newark, N. J.
Sleeper & Hartley, Worcester, Mass.

MACHINERY—Taping
Amer. Insulating Mach. Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Thomson-Judd Wire Machinery Co., Lynn, Mass.
Watson Machine Co., Paterson, N. J.

MACHINERY—Tinsel Rolling Mills
Amer. Insulating Mach'y Co., Phila., Pa.

MACHINERY—Trolley Wire
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Tube Mill
H. J. Ruesch Machine Co., Newark, N. J.

MACHINERY—Welding Wire
Micro Products Co., Chicago, Ill.
F. B. Shuster Co., New Haven, Conn.
Thomson-Judd Wire Machinery Co., Lynn, Mass.

MACHINERY—Winding
American Insulating Mach'y Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Watson Machine Co., Paterson, N. J.

MACHINERY—Wire Drawing
American Insulating Machinery Co., Phila.
Broden Const. Co., Cleveland, Ohio.
Morgan Construction Co., Worcester, Mass.
H. J. Ruesch Machine Co., Newark, N. J.
E. J. Scudder Foundry & Machine Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Thomson-Judd Wire Machinery Co., Lynn, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Wire Rope
New England Butt Co., Providence, R. I.
Thomson-Judd Wire Machinery Co., Lynn, Mass.
Watson Machine Company, Paterson, N. J.

PICKLING COMPOUNDS—
American Chemical Paint Co., Ambler, Pa.
Delany Chemical Co., Tacony Station, Philadelphia, Pa.
Grasselli Chemical Co., Cleveland, O.
Wm. M. Parkin & Co., Pittsburgh, Pa.

MACHINERY—Wire Tinning
American Insulating Mach'y Co., Phila., Pa.

PAPER—Insulating
E. W. Twitchell, Inc., Phila., Pa.

POTS—Lead Melting
John Robertson Co., Brooklyn, N. Y.

PRESSES—Lead Encasing
John Robertson Co., Brooklyn, N. Y.

PRESSES—Lead Extrusion
John Robertson Co., Brooklyn, N. Y.

PULLERS—Wire
E. J. Scudder Fdry. & Machine Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.

PUMPS—Hydraulic
John Robertson Co., Brooklyn, N. Y.

REELS AND SPOOLS—All Kinds
Avoca Mfg. Co., Avoca, N. Y.

REEL AND TENSION STAND—
Sleeper & Hartley, Inc., Worcester, Mass.

REEL CRUTCHES
Watson Machine Co., Paterson, N. J.

ROLLING MILLS—See Machinery—Rolling Mill

ROLLS—
Lewis F'dry & Machine Co., Pittsburgh, Pa.

RUST PROOF COMPOUND
American Lanolin Co., Lawrence, Mass.

SOAPS—Wire Drawing
R. H. Miller Co., Homer, N. Y.
Oak Chemical Co., Bechtelsville, Pa.

SPOOLS—Wood
Avoca Mfg. Co., Avoca, N. Y.

STRIP—Zinc
Platt Bros. & Co., The, Waterbury, Conn.

TANKS—Compound
Watson Machine Co., Paterson, N. J.

TRUCKS
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

TUBE BENDERS AND FORMERS
H. J. Ruesch Machine Co., Newark, N. J.

VALVES AND FITTINGS—Acid Proof
Duriron Co., The, Dayton, O.

VULCANIZERS
John Royle & Sons, Paterson, N. J.
Watson Machine Co., Paterson, N. J.

VULCANIZING PANS
American Insulating Mach'y Co., Phila., Pa.

WIRE—Manufacturers
Keystone Steel & Wire Co., Peoria, Ill.

WIRE—Nickel Silver and Phosphor Bronze
Seymour Mfg. Co., Seymour, Conn.

WIRE—Non Ferrous to Specification
Seymour Mfg. Co., Seymour, Conn.

WIRE—Steel—Also Coppered Steel—Also Galvanized Steel
Keystone Steel & Wire Co., Peoria, Ill.

WIRE AND STRIP—Zinc
Platt Bros. & Co., The, Waterbury, Conn.

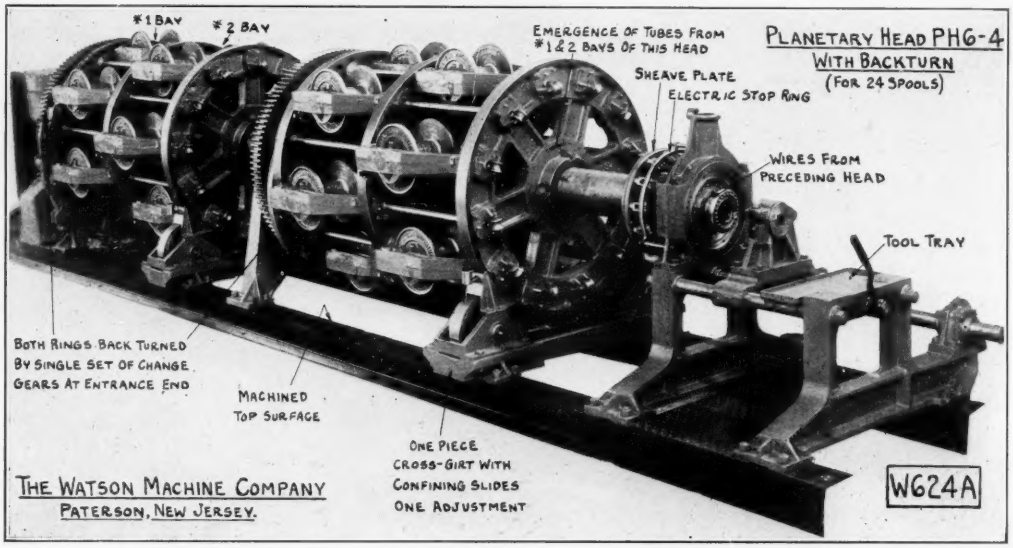
This is a carefully classified index of concerns who specialize in this industry and who advertise regularly in WIRE & WIRE PRODUCTS. Please mention WIRE when writing to these firms.

THE WATSON MACHINE COMPANY

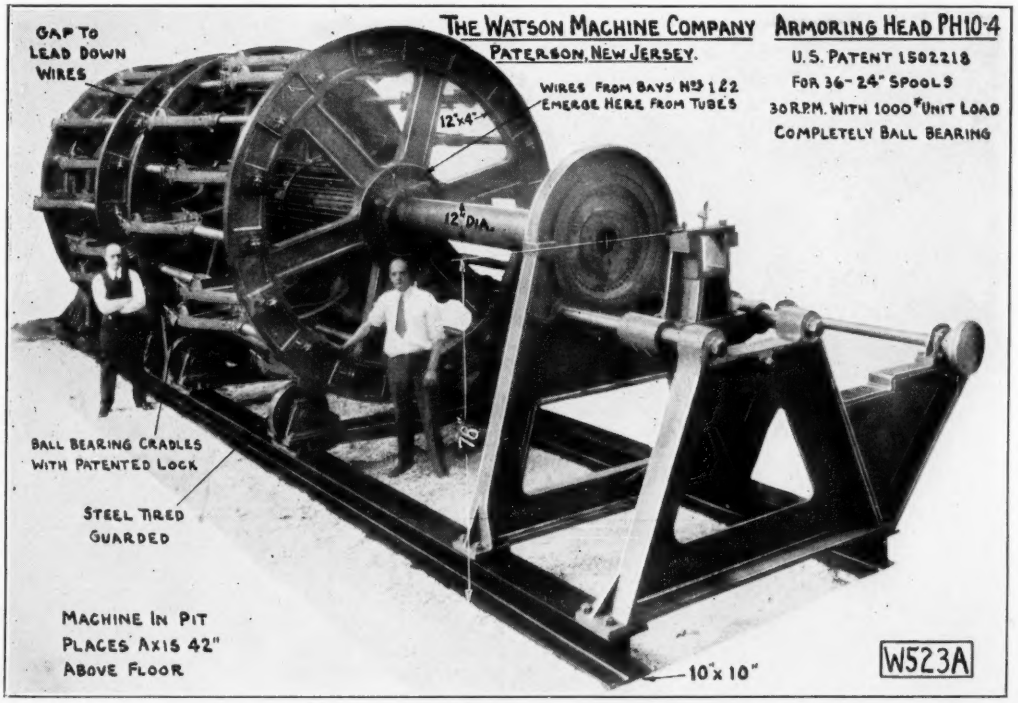
ESTABLISHED 1845

PATERSON, NEW JERSEY, U. S. A.

ENGINEERS - FOUNDERS - MACHINISTS


#1 BAY
#2 BAY
EMERGENCE OF TUBES FROM #1 & 2 BAYS OF THIS HEAD
PLANETARY HEAD PH6-4
WITH BACKTURN
(FOR 24 SPOOLS)
SHEAVE PLATE
ELECTRIC STOP RING
WIRES FROM PRECEDING HEAD
TOOL TRAY
BOTH RINGS BACK TURNED BY SINGLE SET OF CHANGE GEARS AT ENTRANCE END
MACHINED TOP SURFACE
ONE PIECE CROSS-GIRT WITH CONFINING SLIDES ONE ADJUSTMENT
THE WATSON MACHINE COMPANY
PATERSON, NEW JERSEY.
W624A

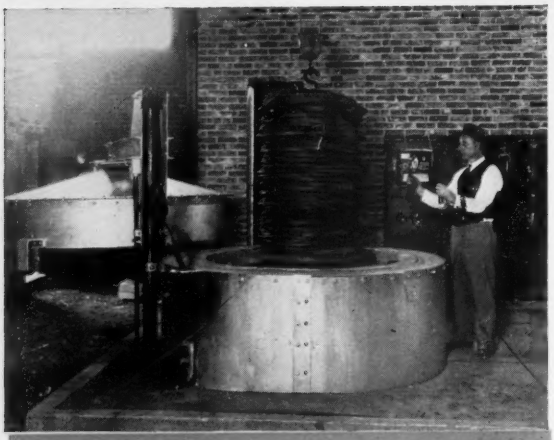
PLANETARY HORIZONTAL STRANDING HEADS in 100, 250 and 500 pound series; for 6, 12, 18, 24, 30 and 36 spools in each series. All Anti-Friction Bearings (including Cradle Necks), with positive elimination of spool side-slap allowing highest speeds. Automatic stops and brakes, low wire lead angles, positive locks preventing operation with unlocked spools. Lang lay attachment at low extra cost.



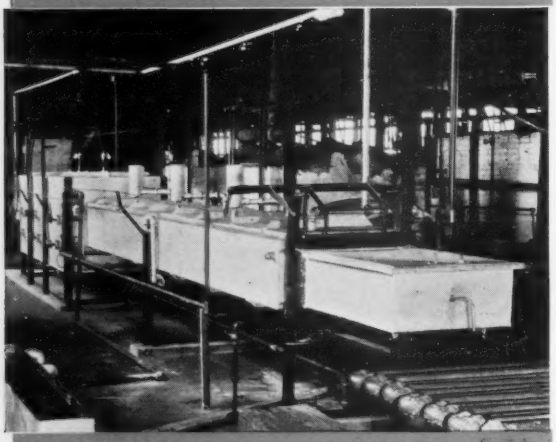
PLANETARY HORIZONTAL ARMORING HEADS in 500 and 1000 pound series, for up to 54 spools in each series. Same construction as on Stranding Heads.

FURNACES

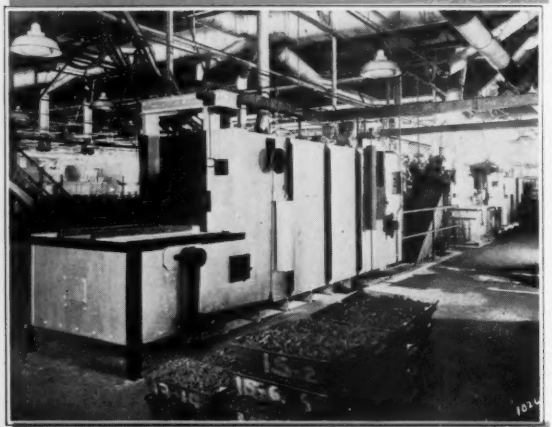
OIL • GAS • ELECTRIC



One of an installation of Circular Pit Type Electric Furnaces, used for annealing rod in coils in a prominent steel plant.



Discharge end of continuous bright annealing furnace for annealing fine copper wire on spools.



Heat treating miscellaneous springs, automatically, uniformly and economically. This unit consists of hardening furnace, quench, washing machine and draw furnace—arranged in line.

We build the furnace to fit your job

Regardless of the size, shape, or weight of your products—the process, the accuracy of treatment or tonnage required, we can build a furnace to handle it uniformly, economically and to meet your production schedules.

Practically everything from small steel balls for bearings to pressure vessels weighing 350,000 lbs., and structural shapes up to 90 feet in length are being successfully handled in our furnaces.

Recent developments and installations include furnaces for—

Annealing Wire in Pits

An improved pit type furnace anneals wire in coils. Has the following advantages: Increased tonnage per pit, improved fuel economy, more uniform anneal, improved surface condition, decreased annealing time and labor requirements.

Bright Annealing Copper Wire

Our new continuous furnace anneals fine copper wire on spools bright and dry. (See illustration at left)

Annealing Strip in Coils

A new fuel-fired removable hood type furnace anneals strip in coils—Shows lower fuel and maintenance cost, shorter annealing time, more uniform results, greater flexibility and ease of operation.

Heat Treating Without Scale

Continuous controlled atmosphere furnaces for heating and heat treating without scale or decarburization.

Continuous Bright Annealing Furnaces

For ferrous and non-ferrous metals. Sheet, strip, tubing, wire, stampings, finished and semi-finished parts are delivered bright and dry.

Our Engineering Department will be glad to consult with you on your heating or heat treating problems.

THE ELECTRIC FURNACE CO.
SALEM, OHIO.

Fuel Fired Furnaces

Electric Furnaces